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COMMITTEE OF EXPERTS ON THE
TRANSPORT OF DANGEROUS GOODS

Sub-Committee of Experts on the
Transport of Dangerous Goods
(Fourteenth session,
Geneva, 8-18 December 1997,
agenda item 2 (b))

DRAFT AMENDMENTS TO THE MODEL REGULATIONS ON THE TRANSPORT OF DANGEROUS GOODS

Use of packagings and IBCs

Packing Instructions and Special Provisions

Transmitted by the Experts from the United Kingdom
and the United States of America

Background

1 During its thirteenth session, the Sub-Committee considered two papers ST/SG/AC.10/C.3/1997/24 (USA) and ST/SG/AC.10/C.3/1997/40 (United Kingdom). These papers proposed packaging instructions for incorporation in the Model Regulation. The Sub-Committee also adopted guiding principles to be used in developing the packing instructions for packagings and IBCs (see ST/SG/AC.10/C.3/26, Annex 3). The Sub-Committee agreed that the proposals by the United States and the United Kingdom should be merged as a single proposal addressing packing instructions for consideration at the fourteenth session.

2. In addition to the comments provided during the thirteenth session, the experts from the United States and the United Kingdom took into account comments provided by the International Maritime Organization(IMO), Dangerous Goods, Solid Cargoes and Containers (DSC) Sub-Committee, Editorial and Technical (E&T) Group which met from 1-10 September 1997. On the basis of the comments and the guiding principles, the experts from the United States and the United Kingdom have revised their proposals into a single consolidated proposal. The proposed packing instructions, special provisions and consequential text needed to incorporate packing methods and special provisions into the Model Regulation are provided in Annexes 1 to 3. The methods for assigning packing instructions to specific substances are provided in Annexes 4 and 5. The text in these latter Annexes is not proposed for incorporation into the Model Regulation but is provided only to illustrate how the packing instructions will be assigned to specific substances in the Dangerous Goods List.

Discussion of Revisions

3. The proposed packing instructions include general packing instructions (P001, P002, P003 and P099) which can be applied to the majority of substances in Classes 3, 5, 6, 8 and 9. P001 and P002 have been revised to include provisions from existing regulations including the RID/ADR and the IMDG Code. P001 and P002 are offered as working drafts for use by the Sub-Committee in reaching consensus on general packing instructions for liquids and solids. Some of the specific packing instructions for substances and articles proposed in -C.3/1997/24 and -C.3/1997/40 have been deleted and a few have been added. P200 was streamlined and made more general. These amendments are based on further consideration of existing regulations, comments received and the guiding principles. Non-packaging related classification, operational and consignment requirements have been removed from the proposed packing instructions. The proposed IBC packing instructions have been revised taking into account requirements in the IMDG Code, the RID/ADR, the US Hazardous Materials Regulations and comments received in regard to -C.3/1997/24.

4. In Annex 1, new text and amendments are proposed for Part 4 to merge the packing instructions into the Model Regulation. The proposed text has been derived from the ICAO Technical Instructions, Part 3, Chapter 2. This text generally explains the layout and use of the packing instructions. Depending on the outcome of this joint proposal other amendments to part 4 (i.e. renumbering paragraphs) , specifically 4.1.3 to 4.1.8, will be necessary to address the packing instructions for each class of substances. The experts from the United Kingdom and United States will be prepared to develop these amendments based on comments from the secretariat and the Sub-Committee. The Sub-Committee is requested to consider the layout of Part 4 as it pertains to including the packing instructions and special packaging/IBC provisions.

5. The special packaging provisions (SPPs) initially proposed in -C.3/1997/24 have been significantly revised. In Annex 3, the special provisions currently provided in Chapter 3.3 which deal with packaging requirements have been identified. Some special provisions from the IMDG Code have been added. All of the special provisions have been aligned with the Sub-Committee's guiding principles. Consistent with the format of the packing instructions currently in the Tenth Revised Edition of the Recommendations, most of the packaging requirements in the special provisions have been extracted and are proposed to be incorporated as particular packing provisions or exceptions in the applicable packing instructions. Those that apply to a large number of substances are left as

packaging special provisions and are proposed to be included in column 9 of the Dangerous Goods List. The special provisions related to IBCs have been minimized.

6. The rationalized approach for packagings has been amended to take into account the addition or deletion of specific packing instructions. The rationalized approach for IBCs has been amended to indicate the IBC assignments and methodologies in existing regulations including RID/ADR, 49 CFR and the IMDG Code. The comparison of IBC assignments in the various regulations is provided for information and to assist the Sub-Committee in considering the methodology for assigning IBC packing instructions to specific entries. Some of the proposed IBC assignments were amended based on commonalities in existing regulations and comments received from the IMO DSC E&T Group and Sub-Committee participants.

Proposal for Use of Open Head Drums for PG I Liquids

7. During the thirteenth session, the Sub-Committee discussed whether open head drums should be authorized as single packagings for PG I liquids since the current IMDG Code prohibits their use. Some delegates indicated their doubts that any open head packagings could meet the PG I performance criteria for liquids when tested as single packagings. Delegates were encouraged to contact packaging manufacturers and shippers in this regard. The experts from the United States and the United Kingdom contacted packaging manufactures and learned that a number of open head packagings (Particularly 1A2 drums) have passed the PG I performance tests for liquids. On this basis, it is proposed that open head single packagings, which meet the PG I performance level for liquids, be authorized in packing instructions P001 and P002.

Hermetically sealed packagings

8. Hermetically sealed packagings are defined as packagings with vapour-tight closures. Hermetically sealed packaging is referenced throughout the Model Regulation, IMDG Code and RID/ADR. However, the terminology is not well defined. For instance in the IMDG Code, bags are required to be hermetically sealed. The term "hermetically sealed" and "vapour tight" are not defined by performance criteria (i.e. a leakproofness or internal pressure test). Currently within the IMDG Code approximately 190 substances are required to be transported in hermetically sealed packagings. The IMO DSC E&T Group indicated that this requirement should be included in the Model Regulation but agreed that the terminology is not well defined. In the RID/ADR hermetically sealed packagings are required for some substances but there does not seem to be a rationale for specifying it. The Sub-Committee is requested to consider whether hermetically sealed (vapour tight) packagings should be specified in the Model Regulation and whether a special packaging provision should be incorporated to require packagings to be hermetically sealed consistent with the IMDG Code.

Sift proof and water resistant packagings

9. The terms "sift proof" and "water proof" are used throughout the various regulations with respect to packagings and IBCs. In developing the IBC packing instructions and special packaging provisions, it was noted that in the IMDG Code some substances are required to be in sift proof or water proof IBCs while others are not (see notes 8, 10 and 14 in the List of Solid Substances Suitable for Transport in IBCs). There is no clear rationale for applying these requirements in the IMDG Code

or other regulations. The Sub-Committee is requested to consider this matter and provide comments to the experts from the United Kingdom and United States so that it can be resolved in the final proposal.

Use of 5M1, 5H1 and 5L1 bags

10. There were inconsistencies in the various regulations concerning the use of 5M1, 5H1 and 5L1 bags. These bags do not have an inner liner or coating. The experts from the United Kingdom and United States do not believe these bags are suitable for the transport of all dangerous goods and that their use should be restricted to only specific low hazard substances as is the case in the IMDG Code. Particular packing provisions and exceptions have been incorporated in P002 of this proposal to limit the use of these bags to specific substances consistent with the IMDG Code. In P002, these bags have been placed in square brackets to indicate that the Sub-Committee should consider whether these bags should be allowed for the transport of dangerous goods, and if so, whether their use should be limited to specific substances as is the case in the IMDG Code.

Pressure limitations for IBCs

11. The experts from the United Kingdom and United States have received comments regarding a limitation for liquid dangerous goods when transported in IBCs (see IBC 01, IBC02 and IBC03). The limitation prohibits liquids with a vapour pressure greater than 110kPa at 50 °C, or 130 kPa at 55 °C from being transported in IBCs. The UN Recommendations and 49 CFR only ever applied this limitation to metal IBCs. The IMDG Code applies it to all IBCs intended for the transport of liquids. Industry groups have indicated that there should not be a pressure limitation on IBCs, but, as with drums and other packagings, the pressure retention capability of the IBC, as evaluated by the hydraulic test pressure applied, should dictate which substances are appropriate for transport in IBCs.

12. A consequence of removing this limitation would be that the requirements concerning the set pressure of the pressure relief devices for metal IBCs (see 6.5.3.1.7) would have to be amended to provide that the set pressure would be determined on the basis of the vapour pressure of the product contained in the IBC. Another consequential amendment would be to require metal IBCs to be marked with the hydraulic test pressure to which they have been tested.

13. The Sub-Committee is requested to consider this matter. The experts from the United Kingdom and United States are prepared to address this issue in a separate proposal following a decision by the Sub-Committee.

Packing group designations for articles

14. In developing the packaging instructions it has been proposed that the majority of articles need not be required to be transported in packagings meeting the performance tests specified in Part 6 of the Model Regulation (assigned to P003 or a specific packing instruction such as P901). The assignment of a packing group to these articles serves no purpose since packaging tests are not necessary. For those articles where packaging tests are necessary, the packing instruction can be used to indicate the required performance level (i.e. PG II). Considering that the assignment of packing groups to articles is not done by strict application of the criteria for classification, it is proposed that

the packing group designations in column 5 of the dangerous goods list be removed for articles. If the Sub-Committee agrees, the list of articles provided in ST/SG/AC.3/1997/40 should be used to determine the necessary amendments to the Dangerous Goods List.

Consequential amendments

15. Consequential amendments to Parts 3, 4 and 6 resulting from the outcome of the proposals in this document may be necessary.

Use of wood barrels

16. In P001, P002 and other packing instructions provisions for the use of wood barrels have been deleted with the exception of alcoholic beverages and associated substances (i.e. ethyl alcohol). For these substances a particular packing provision or exception has been included in P001 to allow their use. The experts from the United Kingdom and United States do not believe these packagings are used for any other products.

N type packagings

17. This paper includes reference to the use of N type (metal other than steel or aluminium) packagings. A proposal for N type packagings is addressed in a separate submission.

Compressed Gas cylinders

18. Provisions to allow liquids and solids in compressed gas cylinders approved by the competent authority have been removed from the individual packing instructions and included as general text in the introduction to the packing instructions (see proposed 4.1.3.5). The Sub-Committee should consider whether some general requirements relative to the design and construction of compressed gas cylinders should be incorporated into Chapter 6.2 of the Model Regulation. If agreed the experts from the UK and US could propose general requirements based on those in packing instruction P200 from the ICAO TI and the introduction to Class 2 (see pages 2005-2008) in the IMDG Code.

Large Packagings

19. Provisions for large packagings have been addressed in the introduction to the packing instructions (see 4.1.3.6).

* * * * *

Annex I

PROPOSED PACKING INSTRUCTIONS

4.1.3 Packing instructions and special packing provisions

4.1.3.1 This section is devoted to the general and specific packing instructions and special packing provisions applicable to dangerous goods in classes 1 to 9. The packing instructions and special packing provisions apply to both packagings and IBCs. In some cases, general requirements applicable to a class, division or group of substances are provided.

4.1.3.2 Column 8 of the dangerous goods list shows for each article or substance the number of the packing instruction that shall be used. Column 9 includes packing special provisions that apply to specific substances.

4.1.3.3 Each packing instruction shows, where applicable, the acceptable single, composite and combination packagings. For combination packagings, the acceptable outer packagings and inner packagings with the maximum net quantity permitted in each inner packaging, if applicable are shown. Where the maximum quantity per package is not indicated, the maximum quantity per packaging specified in Part 6 for each design type applies. Where appropriate, particular packing requirements and exceptions are indicated for each commodity. These requirements are detailed in the packing instructions.

4.1.3.4 Where the packing instructions in this part authorize the use of a particular type of outer packaging in a combination packaging (e.g. 4G), packagings bearing the same packaging identification code followed by the letter "V" marked in accordance with the requirements of Part 6 (e.g. 4GV) may also be used under the same conditions and limitations applicable to the use of that type of outer packaging according to the relevant packing instruction. For example, a combination packaging marked with the packaging code "4GV" may be used whenever a combination packaging marked "4G" is authorized, provided the requirements in the relevant packing instruction regarding types of inner packagings and quantity limitations are respected.

4.1.3.5 Compressed gas cylinders approved by the competent authority are authorized for the transport of any liquid or solid substance assigned to the packing instructions for classes 3 through 9 in this Chapter. The capacity of the cylinders shall not exceed 1000 litres.

4.1.3.6 Large packagings (see Chapter 6.6) may be used for substances assigned to packing instructions which authorize use of combination packagings or packagings which are not required to meet the requirements of Chapter 6.1.

4.1.3.7 The competent authority may approve the use of a packaging other than those specified in a particular packing instruction indicated in column 8 of the dangerous goods list provided:

(a) the alternative packaging complies with the general requirements of this Part;

(b) when the packing instruction indicated in the dangerous goods list so specifies, the alternative packaging shall meet the requirements of Part 6;

(c) the competent authority determines that the alternative packaging achieves at least the same level of safety as if the substance were packed in accordance with a method specified in the particular packing instruction indicated in the dangerous goods list; and

d) a copy of the competent authority approval accompanies each consignment or the transport document includes an indication that alternative packaging was approved by the competent authority.

4.1.3.8 In the following packing instructions, the general packing provisions of 4.1.1 for packagings and 4.1.2 for IBCs shall be met. Unless otherwise specified, each packaging shall conform to the applicable requirements of Part 6.

P001	**PACKING INSTRUCTION (LIQUIDS)**			**P001**
The following packagings are authorized				
Combination packagings:				
inner packagings	Outer packagings (Max. Design Capacity)	Packing Group Maximum capacity/net mass consistent with limits provided in 6.1.4 unless indicated.		
		PG I	PG II	PG III
Glass or earthenware receptacles ADR/IMO 5 l/10 l Plastics receptacles 30 l/30 l Metal receptacles 40 l/40 l (metal and plastics tubes 1 l -ADR) U.S.CFR no limits for inner packaging Canadian TDGR no limits for inner packaging	**Drums** Steel: 1A2 (400kg) Aluminium: 1B2 (400kg) [Other metal:] N2) (400kg) Plastics: 1H2 (400 kg) Plywood: 1D (400 kg) Fibre: 1G (400 kg)	IMO 75 kg 75 kg [75 kg] 75 kg 75 kg 75 kg	IMO 125 kg 125 kg [125kg] 125 kg 125 kg 125 kg	IMO 125 kg 125 kg [125 kg] 125 kg 125 kg 125 kg
	Boxes Steel: 4A (400 kg) Aluminium: 4B (400 kg) Natural wood 4C1,4C2 (400 kg) Plywood: 4D (400 kg) Reconstituted wood:4F (400 kg) Fibreboard: 4G (400 kg) Expanded plastics: 4H1 (60kg) Solid plastics 4H2 (400kg)	IMO 75 kg 75 kg 75 kg 75 kg 75 kg 40 kg 40 kg 75 kg	IMO 125 kg 125 kg 125 kg 125 kg 125 kg 55 kg 55 kg 125 kg	IMO 125 kg 125 kg 125 kg 125 kg 125 kg 55 kg 55 kg 125 kg
	Jerricans: Steel: 3A2 (120 kg) Aluminium: 3B2 (120 kg) Plastics: 3H2 (120 kg)	IMO 60 kg 60 kg 30 kg	IMO ----- ---- 60 kg	IMO ----- ----- 60 kg

Single packagings:	RID/ADR/IMO	IMO	IMO
Steel drum: 1A1 (450 *l*) or 1A2 (450 *l*)	IMO-250 *l* RID/ADR/IMO- *P*	250 *l* 250 *l*	250 *l* 250 *l*
Aluminium drum: 1B1 (450 *l*) or 1B2 (450 *l*)	IMO-250 *l* RID/ADR/IMO- *P*	250 *l* 250 *l*	250 *l* 250 *l*
Metal drum other than steel, or aluminium: 1N1 (450 *l*) or 1N2 (450 *l*)	[250 *l*] [RID/ADR/IMO- *P*]	[250 *l*] [250 *l*]	[250 *l*] [250 *l*]
Plastics drum: 1H1 (450 *l*) or 1H2 (450 *l*)	ADR-60 /IMO-250 /* RID/ADR/IMO-*P*	250 *l* *P*	250 *l* *P*
[Fibre drum: 1G (with liner or coating if used for liquids) (450 *l*)]	RID/ADR/IMO-N/A	N/A	N/A
Steel jerrican: 3A1 (60 *l*) or 3A2 (60 *l*) Aluminium jerricans: 3B1 (60 *l*) or 3B2 (60 *l*) Plastics jerrican: 3H1 (60 *l*) or 3H2 (60 *l*)	no limit except open head (3A2, 3B2) jerricans not allowed in RID/ADR/IMO 3H1 not allowed for Class 3, PG I-IMO	-----	-----
Composite packagings:			
Plastics receptacle in steel or aluminium drum: 6HA1, 6HB1 (250 *l*)	no limit except not allowed for Class 3, PG I-IMO	-----	-----
Plastics receptacle in fibre, plastics or plywood drum: 6HG1, 6HH1, 6HD1 (250 *l*)	IMO-120 l *	-----	-----
Plastics receptacle in steel or aluminium crate or box or Plastic receptacle in wood, plywood, fibreboard or solid plastics box: 6HA2, 6HB2, 6HC, 6HD2, 6HG2 or 6HH2 (60 *l*)	no limit except not allowed for Class 3, PG I-IMO	-----	-----
Glass, porcelain or stoneware receptacle in steel, aluminium, fibre or plywood drum: 6PA1, 6PB1, 6PG1 or 6PD1 (60 *l*)	no limit except not allowed for Class 3, PG I-IMO	-----	-----
Glass, porcelain or stoneware receptacle in steel, aluminium, wood, fibreboard or plywood box: 6PA2, 6PB2, 6PC, 6PG2 or 6PD2 (60 *l*)	no limit except not allowed for Class 3, PG I	-----	-----
Glass, porcelain or stoneware receptacle in solid or expanded plastics packaging: 6PH1 or 6PH2 (60 *l*)	no limit except not allowed for Class 3, PG I	-----	-----

Particular Packing Provisions or Exceptions:

1 For UN 1133, 1210, 1263 and 1866 except for transport by the air mode, packaging tests are not necessary for substances of Packing Groups II and III in quantities of 5 litres or less per metal or plastics packaging when

(a) In palletized loads [,a pallet box or unit load device], e.g. individual packagings placed or stacked and secured by strapping, shrink or stretch-wrapping or other suitable means to a pallet. [For sea transport, the palletized loads, pallet boxes or unit load devices shall be firmly packed and secured in closed cargo transport units];

(b) As an inner packaging of a combination packaging with a maximum total gross mass of 40 kg.

2 For UN 2984 and 2014 inner packagings should be provided with a pressure relief device or vent. Stabilized solutions which decompose at a very slow rate do not require the venting. Minimum ullage shall be 10%.

3 For UN 3065 and 1170 woods barrels (2C1 and 2C2) may be used.

The particular packing provisions or exceptions were taken from the UN Recommendations and the IMDG Code. The square bracketed text is based on comments from the IMO DSC E&T Group.

* *Prohibited by IMO for Class 3 PG I.*

P Prohibited

Note: The experts from the US and UK have identified a number of open head drums which have been successfully tested at the PG I level for liquids.

P002	PACKING INSTRUCTION (SOLIDS)	P002

The following packagings are authorized

Combination Packaging

Inner Packagings	Outer Packagings (Max. Design capacity)	Packaging Group Maximum capacity net mass consistent with limits in 6.1.4 unless indicated		
		PG I	PG II	PG III
ADR IMO	**Drums:**	IMO	IMO	IMO
Glass or earthenware receptacles 5 kg 10 kg	Steel: 1A2 (400 kg)	125 kg	225 kg	225 kg
Plastics receptacles 30 kg 30 kg	Aluminium: 1B2 (400 kg)	125 kg	225 kg	225 kg
Metal receptacles 40 kg 40 kg	[Other metal:1N2(400 kg)	[125 kg]	[225 kg]	[225 kg]
Paper receptacles*[1] 50 kg 50 kg	Plastics:1H2 (400 kg)	125 kg	225 kg	225 kg
Fibre receptacles*[1] 10 kg 50 kg	Plywood: 1D (400 kg)	125 kg	225 kg	225 kg
Paper bags, sift proof[1] 5 kg 50 kg	Fibre: 1G (400 kg)	125 kg	225 kg	225 kg
Plastic bags[1] 5 kg 30 kg	**Boxes**	IMO	IMO	IMO
Textile bags, sift proof[1] 5 kg 50 kg	Steel: 4A: (400 kg)	125 kg	225 kg	225 kg
*Paper and fibreboard receptacles not allowed in the IMDG Code	Aluminium: 4B: (400 kg)	125 kg	225 kg	225 kg
[1]These packagings may not be used when the contents may become liquid during transport	Natural wood: 4C1, 4C2✤ (400 kg)	125 kg†	225 kg	225 kg
*Bags in RID/ADR have 50kg limit Sachets have a 5kg limit	Plywood: 4D (400 kg)	125 kg	225 kg	225 kg
*ADR metal and plastic tubes-1kg limit	Reconstituted wood: 4F (400 kg)	125 kg	225 kg	225 kg
	Fibreboard: 4G◆ (400 kg)	40 kg	55 kg	55 kg
	Expanded plastics: 4H1 (400 kg)	40 kg	55 kg	55 kg
	Solid plastics: 4H2 (400 kg)	125 kg	225 kg	225 kg
	Jerricans:	IMO	----	----
	Steel: 3A2 (120 kg)	75 kg		
	Aluminium:3B2 (120 kg)	75 kg		
	Plastics: 3H2 (120 kg)	75 kg		

Single Packagings:			
Steel drum: 1A1 or 1A2 (400 kg) Aluminium drum: 1B1 or 1B2 (400 kg) Metal drum other than steel, or alum.: 1N1 or 1N2 (400 kg) Plastics drum: 1H1 or 1H2 (400 kg) Fibre drum: 1G (400 kg) ❖ Plywood drum: 1D (400 kg)	----	----	----
Steel jerrican: 3A1 or 3A2 (120 kg) Aluminium: 3B1 or 3B2 (120 kg) Plastics jerrican: 3H1 or 3H2 (120 kg)	----	----	----
Steel box 4A (400 kg) Aluminium box 4B (400 kg) Wood boxes, 4C1, 4C2, 4D, 4F (400 kg) Fibreboard, 4G (400 kg) Plastics, 4H1, 4H2 (400 kg)	IMO/RID/ ADR: Prohibit boxes for PG I	225 kg except moulded plastic-60kg	225 kg except moulded plastic-60kg
Bags, [5M1, 5L1, 5H1] 5H2, 5H3, 5H4, 5L2, 5L3, 5M2 (50 kg)	IMO/RID/ ADR: Prohibit bags for PGI	----	----
Composite Packagings:			
Plastics receptacle in steel, aluminium, fibre or plastics drum: 6HA1, 6HB1 (400 kg)	----	----	----
Plastics receptacle in plywood, fibre or plastics drum: 6HG1, 6HD1, 6HH1 (400 kg)	IMO:120kg	IMO:250kg	IMO:250kg
Plastics receptacle in steel or aluminium crate or box, Plastics receptacle inwood, plywood or solid plastic box: 6HA2, 6HB2, 6HC, 6HD2, or 6HH2 (75 kg)	----	----	----
Plastics receptacle in fibreboard box: 6HG2 (75 kg)	IMO:40kg	IMO:55kg	IMO:55kg
Glass, porcelain or stoneware receptacle in steel, aluminium, plywood or fibre drum: 6PA1, 6PB1, 6PD1 or 6PG1 (75 kg)	----	----	----
Glass, porcelain or stoneware receptacle in steel, aluminium, wood, plywood or fibreboard box: 6PA2, 6PB2, 6PC, 6PD2, or 6PG2 (75 kg)	---	----	----
Glass, porcelain or stoneware receptacle in solid or expanded plastics packaging: 6PH1 or 6PH2 (75kg)	----	----	----

Particular Packing Provisions or Exceptions:

1. For UN 2002, 2006, 2555, 2556, 2557 and 3270 packagings shall be so constructed that explosion is not possible by reason of increased internal pressure.
2. For UN 3175, 3243 and 3244 packagings shall be a design type that has passed a leakproofness test at the PG II level.
3. For UN 1326, 1338, 1339, 1340, 1341, 1343, 1352, 1353, 1358, 1364, 1373, 1379, 1382, 1384, 1385, 1400, 1401, 1402, 1403, 1405 (PG II only), 1417, 1418, 1431, 1436, 1437, 1871, 1923, 1929, 2213, 2318, 2624, 2805, 2830, 2844, 2878, 2907, 2940, 3088, 3170, 3181, 3182, 3190, 3194, 3205 and 3206 bags are not allowed for sea transport.
4. For sea transport UN 1405 (PG III only) and 2950 is only allowed in bags when transported in closed transport units.
5. For UN 1748, 2741, 2880 and 3212 packagings shall be fitted with venting devices.
6. For UN 1361 and 3077, 5H1, 5L1 and 5M1 bags are allowed.
7. For UN 1309, 1362, 5H1, 5L1 and 5M1 bags are allowed if they are overpacked in plastic bags or are wrapped in shrink or stretch wrap on pallets.
8. For UN 2870, packaging shall meet the PG I level.

❖ *For 4C2 boxes IMO maximum net mass limit is 400 kg consistent with 6.1.4.*

◆ *IMO includes a note which indicates "When heavy duty fibreboard is used for fibreboard boxes, the gross mass may be increased to 100 kg for PG II and III and 75 kg for PG I.*

❖ *IMO does not authorize this packaging for solids which may become liquid during transport.*

P003	PACKING INSTRUCTION	P003

Each packaging need not conform with the requirements of Chapter 6.1. Outer packagings constructed of suitable material of adequate strength and design in relation to the packaging capacity and its intended use shall be used.

Particular Packing Provisions or Exceptions:
1. For UN 2800 batteries shall be protected from short circuit within the packagings.
2. For UN 1044, 1057, 1950, 2037, 2857, 3150, 3164 and 3353 the packagings shall be designed and constructed to prevent movement of the articles and inadvertent discharge during normal conditions of transport.

SP 229 would be deleted (see Annex 5)

P099	PACKING INSTRUCTION	P099

Only packagings which are approved by the competent authority may be used.

P200	PACKING INSTRUCTION	P200

Compressed gas cylinders and gas receptacles conforming to the construction, testing and filling requirements approved by the competent authority are authorized. The general packing provisions of Chapter 4.1 shall be met. Packagings need not conform to the testing and marking requirements of Chapter 6.1.

Particular Packing Provisions or Exceptions:
1. UN 3167, 3168 and 3169 (Gas samples) may be packaged in vapour tight glass or metal inner packagings with a maximum net quantity per package of 5 litres or, in the case of a toxic gas, a maximum net quantity per package of 1 litre which meet the PG III performance level.
2. For UN 1037 1A1 steel drums with a capacity not more than 100 litres which meet Packing Group I performance level requirements may also be used.
3. For UN 1001 cylinders shall be filled with a homogenous monolithic porous mass and contain an adequate quantity of acetone or other equally suitable solvent.

P300	PACKING INSTRUCTION	P300

Nitroglycerine, solution in alcohol shall be packed in combination packagings consisting of inner metal cans of not more than 1 litre capacity each and outer wooden boxes (4C1, 4C2, 4D or 4F) containing not more than 5 litres of solution. Metal cans shall be completely surrounded with absorbent cushioning material. Wooden boxes shall be completely lined with suitable material impervious to water and nitroglycerine.

This packing instruction applies to UN 3064 and is consistent with UN SP 25, ADR, 49 CFR and the IMDG Code. UN 1204 would be assigned to P001.

P301	PACKING INSTRUCTION	P301

This packing instruction applies to Aircraft Hydraulic Power Unit Fuel Tanks. Packagings shall conform to the general packaging requirements of 4.1.1.1 but need not conform to the requirements of Chapter 6.1. Aircraft hydraulic power unit fuel tanks shall consist of:

(a) An aluminium pressure vessel made from tubing and having welded heads. Primary containment of the fuel within this vessel shall consist of a welded aluminium bladder having a maximum internal volume of 46L. The outer vessel shall have a minimum design gauge pressure of 1,275 kPa and a minimum burst gauge pressure of 2,755 kPa. Each vessel shall be leak checked during manufacture and before shipment and shall be found leakproof. The complete inner unit shall be securely packed in non-combustible cushioning material, such as vermiculite, in a strong outer tightly closed metal packaging which will adequately protect all fittings. Maximum quantity of fuel per unit and package is 42L; or

(b) An aluminium pressure vessel. Primary containment of the fuel within this vessel shall consist of a welded vapour tight fuel compartment with an elastomeric bladder having a maximum internal volume of 46L. The pressure vessel shall have a minimum design gauge pressure of 5,170 kPa. Each vessel shall be leak-checked during manufacture and before shipment and shall be securely packed in non-combustible cushioning material such as vermiculite, in a strong outer tightly closed metal packaging which will adequately protect all fittings. Maximum quantity of fuel per unit and package is 42L.

This packing instruction would apply to Aircraft Hydraulic Power Unit Fuel Tank, UN 3165.

P400	PACKING INSTRUCTION	P400

Cylinders and their overpacks need not conform to the requirements of Chapter 6.1. [Substances assigned to this packing instruction should be transported under an inert gas such as a nitrogen blanket.] The following packagings are authorized:

(1) Compressed gas cylinders having a minimum design pressure of 1000 kPa conforming to the construction, testing and filling requirements approved by the competent authority. Cylinder valves shall be protected with steel valve protection caps or collars or the cylinders shall be overpacked in strong wood, fibreboard or plastics boxes. Cylinders shall be secured to prevent movement in the box and shall be packaged and transported so that pressure relief devices remain in the vapour space of the cylinder during normal conditions of handling and transport. Filling shall not be greater than 90% of the capacity of the cylinder.

(2) Boxes (4A, 4B, 4C1, 4C2, 4D, 4F or 4G) or drums (1A2, 1B2, 1N2, 1D or 1G) enclosing vapour tight metal cans with inner packagings of glass, earthenware or metal, with a capacity of not more than 1 L each, having positive threaded closures which are adequately gasketed. Inner packagings shall be cushioned on all sides with dry, absorbent, non-combustible material in a quantity sufficient to absorb the entire contents. The strong, vapour tight metal cans shall be closed by positive means, not by friction. Inner packagings shall not be filled to more than 90% of their capacity. Outer packagings shall not exceed 30kg gross mass.

(3) Steel, aluminium or metal drums (1A1, 1B1 or 1N1) with a maximum gross mass of not more than 150 kg each with vapour tight inner metal cans not more than 4.0 L capacity each, closed by positive means, not friction.

(a) Inner packagings shall be surrounded with non-combustible cushioning material;
(b) Each layer of inner containers shall be separated by a dividing partition in addition to cushioning material;
(c) Inner packagings shall not be filled to more than 90% of their capacity.

This packing instruction applies to certain Division 4.2, PG I hazards. This was revised to be more consistent with ADR Marginal 2433 and the IMDG Code. This packing instruction if accepted could be made more tabular.

P401	PACKING INSTRUCTION	P401

The following packagings are authorized

(1) Steel compressed gas cylinders having a minimum design pressure of 1000 kPa conforming to the construction, testing and filling requirements approved by the competent authority. Cylinder valves shall be protected with steel valve protection caps or collars or the cylinders shall be overpacked in strong wood, fibreboard or plastics boxes. Cylinders shall be secured to prevent movement in the box and shall be packaged and transported so that pressure relief devices remain in the vapour space of the cylinder during normal conditions of handling and transport. Filling shall not be greater than 90% of the capacity of the cylinder.

	Inner receptacle	Outer packaging
(2) Combination packagings with water resistant inner packagings which have a positive (not friction) means of closure packed with inert cushioning and absorbent material	1*l*	30 kg

(3) Steel drums (1A1) with a maximum capacity of not more than 250*l*.

This packing instruction applies to certain Division 4.3 PG I liquids (specifically chlorosilanes: UN 1185, 1242, 1295, 2988). This was revised to be more consistent with ADR Marginal 2473 and the IMDG Code (see for instance page 4341).

P402	PACKING INSTRUCTION	P402

The following packagings are authorized

(1) Steel compressed gas cylinders having a minimum design pressure of 1000 kPa conforming to the construction, testing and filling requirements approved by the competent authority. Cylinder valves shall be protected with steel valve protection caps or collars or the cylinders shall be overpacked in strong wood, fibreboard or plastics boxes. Cylinders shall be secured to prevent movement in the box and shall be packaged and transported so that pressure relief devices remain in the vapour space of the cylinder during normal conditions of handling and transport. Filling shall not be greater than 90% of the capacity of the cylinder.

	Inner receptacle	Outer packaging
(2) Combination packagings with water resistant inner packagings which have a positive (not friction) means of closure packed with inert cushioning and absorbent material	5 *l*	125 kg

(3) Steel drums (1A1) with a maximum capacity of not more than 250*l*.

This packing instruction applies to certain Division 4.3 PG I liquids other than chlorosilanes (specifically UN 1928, 3148, 3130, 3207). This was revised to be more consistent the IMDG Code (see for instance pages 4355-1, 4355-2 and 4366).

P403	PACKING INSTRUCTION	P403

The following packagings are authorized:

	Inner receptacle	Outer packaging
(1) Combination packagings with water resistant inner packagings which have a positive (not friction) means of closure	metal plastic-15kg glass-2kg	400kg 225kg

	Maximum capacity
(2) Composite packagings consisting of plastics receptacle in steel or aluminium drums (6HA1 or 6HB1), plastics receptacle in fibre, plastics or plywood drums (6HG1, 6HH1 or 6HD1), plastics receptacle in steel, aluminium, wood, plywood, fibreboard or solid plastics boxes (6HA2, 6HB2, 6HC, 6HD2, 6HG2 or 6HH2)	250 kg

	Maximum capacity
(3) Removable head steel, aluminium, metal or plastic drums (1A2, 1B2, 1N2 or 1H2),or Removable head jerricans (3A2, 3B2 or 3H2)	250kg 120kg

Particular Packing Provisions or Exceptions:
[For UN 1378 packagings shall be fitted with a venting device.]

This packing instruction applies to certain Division 4.2 and 4.3 PG I solids including phosphides and hydrides of Division 4.3. This was revised to be more consistent with the IMDG Code (see for instance page 4350). The ADR and 49 CFR are less restrictive for these substances than the IMDG Code. The Sub-Committee should take note of this and consider if this packing instruction is too restrictive. This packing instruction if accepted could be made more tabular.

P404	PACKING INSTRUCTION	P404

The following packagings are authorized:
(1) When placed in water:

(a) Wooden boxes (4C1, 4C2, 4D, or 4F) with a maximum capacity of 75 kg:

(i) inner vapour tight (soldered) metal cans, or
(ii) inner glass receptacles cushioned on all sides with dry, absorbent, non-combustible material in a quantity sufficient to absorb the entire contents with a net capacity not exceeding 2 kg; or

(b) Drums (1A1, 1A2, 1B1, 1B2, 1N1 or 1N2) or jerricans (3A1 or 3B1).

(2) When dry, it shall be fused and transported in packagings as follows:

(a) Drums (1A2, 1B2 or 1N2) ; or

(b) In projectiles or hard cased articles when transported without Class 1 components by, for, or to military agencies as specified by the competent authority.

This packing instruction applies to white and yellow phosphorus. *This was revised to be more consistent with the IMDG Code (see page 4250) and the ADR (see marginal 2435(3).*

P405	PACKING INSTRUCTION	P405

Each packaging shall conform to the Packing Group I performance level. Packagings shall be designed and constructed to prevent the loss of water or alcohol content or the content of phlegmatizer. Metal packagings shall be so constructed and closed that they yield to an internal pressure of not more than 300 kPa (3 bar). The following packagings are authorized:

(1) Combination packagings with outer packagings consisting of wooden boxes (4C1, 4C2, 4D, or 4F), fibreboard boxes (4G), plastic boxes (4H1 or 4H2), fibreboard or plywood drums (1G, 1D), open head plastic drums or jerricans (1H2 or 3H2) with water resistant inner packagings.

(2) In plastic, plywood or fibreboard drums in each case with at least one water resistant inner bag.

(3) In steel drums (1A1 or 1A2), aluminium drums (1B1 or 1B2), metal drums other than steel or aluminium (1N1 or 1N2), plastics drums (1H1 or 1H2), steel jerricans (3A1 or 3A2), aluminium jerricans (3B1 or 3B2), plastics jerricans (3H1 or 3H2) plastics receptacle in steel or aluminium drums (6HA1 or 6HB1), plastics receptacle in fibre, plastics or plywood drums (6HG1, 6HH1 or 6HD1), plastics receptacle in steel, aluminium, wood, plywood, fibreboard or solid plastics boxes (6HA2, 6HB2, 6HC, 6HD2, 6HG2 or 6HH2).

Particular Packing Provision or Exception:
1. UN 1344, 1354, 1355, 1356 and 2852 shall not be transported in quantities of more than 500 grams per package.
2. UN 1347 shall not be transported in quantities of more than 15 kg per package.
3. For UN 1310, 1320, 1321, 1322, 1344, 1347, 1348, 1349 and 3317 packagings shall be lead free.

This packing instruction applies to desensitized explosives. This was revised to be more consistent with the IMDG Code (see table 1 in the introduction to Class 4.1) and ADR (see Marginal 2404).

P406	PACKING INSTRUCTION	P406

Matches shall be tightly packed in combination packagings comprising securely closed inner packagings to prevent accidental ignition under normal conditions of transport. These packagings need not conform with the requirements of Chapter 6.1.

Strike-anywhere matches shall not be packed in the same outer packaging with any material other than safety matches or wax Vesta matches, which shall be packed in separate inner packagings.

This packing instruction would apply to Matches, UN1331, UN1944, UN1945, UN2254. Two new packaging special provisions would be incorporated one providing definitions for matches and another excepting safety and wax Vesta matches from all requirements of the Model Regulation when packaged in accordance with P404 (see Annex 3).

P407	PACKING INSTRUCTION	P407

Packagings shall conform to the Packing Group II performance level. The following applies:

Cells shall be placed within outer packagings with sufficient cushioning material to prevent contact between cells and between cells and the internal surfaces of the outer packaging and to ensure that no dangerous movement of the cells within the outer packaging occurs in transport.

In addition batteries may be carried unpacked or in protective enclosures (e.g. in fully enclosed or wooden slatted crates). The terminals shall not in any case support the weight of any other superimposed elements.

Batteries shall be protected against short circuit and shall be isolated in such a manner as to prevent short circuits.

This packing instruction applies to Sodium Batteries, UN 3292. SP 239 would be amended (see Annex 3).

P408	PACKING INSTRUCTION	P408

Each packaging shall conform to the Packing Group III performance level. Unless otherwise approved by the competent authority, packaging shall be a fibre drum which may be lined, the maximum contents of which shall not exceed 50 kg.

This packing instruction applies to UN 2956 (Musk xylene) and 3251 (Isosorbide-5-mononitrate). It is based on the current SP 132.

P500	PACKING INSTRUCTION	P500

Packagings shall conform to the Packing Group II performance level. The generator(s) shall be transported in a package which will meet the following requirements when one generator in the package is actuated:

(i) Other generators in the package will not be actuated;

(ii) Packaging material will not ignite; and

(iii) The outside surface temperature of the completed package shall not exceed 100 °C.

This packing instruction applies to Oxygen generators, chemical, UN 3356. SP 284 would be amended (see Annex 3).

P501	PACKING INSTRUCTION	P501

The following packagings are authorized:	Receptacle net	Package gross
Glass or plastics receptacles in boxes (4A, 4B, 4C1, 4C2, 4D or 4F)	2l.	125kg
Metal receptacles in boxes (4A, 4B, 4C1, 4C2, 4D or 4F)	5l.	125kg
Plastics or metal receptacles each in a plastic bag in a fibreboard box (4G)	2l.	50kg
Metal drums (1A1, 1B1 or 1N1)	--	125kg

Particular Packing Provision or Exception:
1. Packaging shall not be filled to more than 90% of their capacity.
2. For UN 2015, packagings shall be vented except when the ullage is 33% or more in which case the packaging shall be vapour tight.

This packing instruction applies to Hydrogen Peroxide stabilized, UN 2015 and other Division 5.1, PG I substances. This packing instruction takes into account the packing instructions in the IMDG Code (see page 5152) and ADR marginal 2503.

P800	PACKING INSTRUCTION	P800

This packing instruction applies to Gallium and Mercury. Cylinders and flasks need not conform to the requirements of Chapter 6.1. Packaging shall meet Packing Group I requirements for transport by aircraft and Packing Group III requirements for all other modes of transport. The following packagings are authorized:

(1) Packagings intended to contain liquids consisting of glass, earthenware or rigid plastics packagings with a maximum net mass of 10 kg each. The inner packagings shall be packed in wooden boxes (4C1, 4C2, 4D, 4F), fibreboard boxes (4G), plastics boxes (4H1, 4H2), fibre drums (1G) or removable head steel and plastic drums or jerricans (1A2, 1H2, 3A2 or 3H2) with sufficient cushioning material to prevent breakage. Either the inner packagings or the outer packagings shall have inner liners or bags of strong leakproof and puncture-resistant material impervious to the contents and completely surrounding the contents to prevent it from escaping from the package irrespective of its position.

(2) When it is necessary to transport Gallium at low temperatures in order to maintain it in a completely solid state, the above packagings may be overpacked in a strong, water-resistant outer packaging which contains dry ice or other means of refrigeration. If a refrigerant is used, all of the above materials used in the packaging of gallium shall be chemically and physically resistant to the refrigerant and shall have impact resistance at the low temperatures of the refrigerant employed. If dry ice is used, the outer packaging shall permit the release of carbon dioxide gas.

(2) Cylinders and steel flasks with vaulted bottoms approved by the competent authority are also authorized.

This packing instruction was revised to be more consistent with ADR Marginal 2807(4). This could be made more tabular.

P801	PACKING INSTRUCTION	P801

Packagings shall conform to the Packing Group III performance level. Batteries shall be protected against short circuits. Batteries may be carried on pallets when they conform to the following conditions:

(1) the batteries shall be stacked and adequately secured in tiers separated by a layer of non-conductive material;

(2) the battery terminals shall not, in any case, support the weight of other superimposed elements;

(3) the batteries shall be isolated in such a manner as to prevent short circuits.

This packing instruction applies to wet and dry batteries, UN2794, UN2795 and UN3028.

P900	PACKING INSTRUCTION	P900

The following packagings are authorized:

(1) Rigid, leak tight packagings, such as metal, plastics or fibre drums, IBCs or portable tanks;

(2) Bags or other non-rigid packagings in closed freight containers that are loaded by and for the exclusive use of the consignor and unloaded by the consignee;

(3) Bags or other non-rigid packagings which are sift-proof. Packagings containing asbestos shall be palletized and unitized by methods such as shrink-wrapping in plastics film or wrapping in fibreboard secured by strapping. Pallets need not be used during transportation by vessel for loads with slings that are unitized by methods such as shrink, wrapping, if the slings adequately and evenly support the loads and the unitizing method prevents shifting of the bags or other non-rigid packagings during normal conditions of transport; or

(4) Bags or other non-rigid packagings which are sift-proof in strong outer packagings.

This packing instruction applies to Asbestos, blue, brown or white (UN 2212 and 2590). SP 168 includes an exception for manufactured articles containing asbestos which is conditional upon packaging. This should remain in SP 168.

P901	PACKING INSTRUCTION	P901

Packagings need not conform to the requirements of Chapter 6.1. Carbon dioxide, solid (dry ice), when transported by aircraft or water, shall be packed in packagings designed and constructed to permit the release of carbon dioxide gas to prevent a build-up of pressure that could rupture the packagings.

This packing instruction applies to Carbon dioxide, solid (dry ice) (UN 1845). A new SP is proposed to address additional ICAO TI and IMDG Code requirements.

P902	PACKING INSTRUCTION	P902

When transported by sea, fish meal or fish scrap, containing at least 5 % but not more than 12 % moisture content, shall be packed in the following packagings:

(1) Bags (5H1, 5H2, 5H3, 5H4, 5L1, 5L2, 5L3, 5M1 or 5M2);
(2) IBCs;
(3) Freight containers.

* *The assignment of IBCs and freight containers in this packing instruction does not follow the guiding principles but it does not seem efficient to have more than one packing instruction for Class 9 fish meal.*

This packing instruction applies to stabilized fish meal or fish scrap (UN 2216). The IMDG Code includes additional notes related to loose bags and containers (see page 9030a). These are not proposed for inclusion in the packing instruction.

P903	PACKING INSTRUCTION	P903

The following packagings are authorized:
(1) Wooden boxes (4C1, 4C2, 4D, 4F) and fibreboard boxes (4G) with sealed inner plastics liners;
(2) Plywood drums (1D) and fibre drums (1G) with sealed inner plastics liner; and
(3) Metal drums (1A1, 1A2, 1B1, 1B2, 1N1, 1N2);
(4) Plastic drums (1H1, 1H2).

This packing instruction applies to polymeric beads or granules, expandable, impregnated with flammable gas or liquid as a blowing agent and plastics moulding materials in dough, sheet or extruded rope form (UN 2211).

P904	PACKING INSTRUCTION	P904

Each packaging shall conform to the performance level consistent with the packing group assigned to the kit as a whole. Dangerous goods in kits shall be packed in inner packagings which shall not exceed either 250 ml or 250 g and shall be protected from other materials in the kit. The maximum total quantity of dangerous goods in any one outer package shall not exceed 10 kg.

This packing instruction applies to chemical or first aid kits (UN 3316). SP 251 should be amended (see Annex 3).

P905	PACKING INSTRUCTION	P905

Each packaging shall conform the Packing Group III performance level. Air bag inflators or modules or seat belts pretensioners may be carried unpackaged in dedicated handling devices, vehicles, containers or wagons when moved from where they are manufactured to an assembly plant.

This packing instruction applies to Air bag inflators, air bag modules or seat-belt pretensioners (UN [3353-Class2], 3268-Class 9). SP 235 should be amended (see Annex 3).

P906	PACKING INSTRUCTION	P906

Each packaging shall conform to the Packing Group II performance level. Cells and batteries shall be packaged in inner packagings to effectively prevent short circuits and to prevent movement which could lead to short circuits.

When lithium cells and batteries are packed with equipment, they shall be packed in inner fibreboard packagings that meet the requirements for Packing Group II. When lithium cells and batteries included in Class 9 are contained in equipment, the equipment shall be packed in strong outer packagings in such a manner as to prevent accidental operation during transport.

This packing instruction applies to lithium batteries and cells and lithium batteries and cells contained in equipment. UN 3090, 3091 SP 231 should be deleted (see Annex 3).

P907	PACKING INSTRUCTION	P907

Packagings shall include:

(a) an inner packaging comprising:
(i) a watertight primary receptacle(s);
(ii) a watertight secondary packaging which is leakproof;
(iii) absorbent material in sufficient quantity to absorb the entire contents placed between the primary receptacle(s) and the secondary packaging. If several primary receptacles are placed in a single secondary packaging, they shall be individually wrapped so as to prevent contact between them.

(b) an outer packaging of adequate strength for its capacity, mass and intended use, and with a minimum external dimension of 100 mm.

This packing instruction applies to genetically modified micro-organisms, UN3245. SP 219 should be amended (see Annex 3).

P908	PACKING INSTRUCTION	P908

Packagings shall be strong outer packagings except when the life saving appliances are constructed to incorporate or are contained in rigid outer weatherproof casings (such as for lifeboats) in which case they may be transported unpackaged. All dangerous substances and articles contained as equipment within the appliances shall be secured to prevent inadvertent movement and in addition:

a) Signal devices of Class 1 should be packed in plastics or fibreboard inner packagings;
b) Gases (Class 2.2) should be contained in cylinders complying Chapter 2, Section 6.2.1, which may be connected to the appliance;
c) Electric storage batteries (Class 8) should be disconnected as or electrically isolated and secured to prevent any spillage of liquid; and
d) Small quantities of other dangerous substances should be packed in strong inner packagings.

Preparation for transport should include provisions to prevent any accidental inflation of the appliance.

This packing instruction applies life saving appliances (UN 3072 and 2990). This packing instruction was provided by the IMO DSC Editorial and Technical Group.

P909	PACKING INSTRUCTION	P909

Liquids and solids containing or contaminated with PCBs shall be packaged in accordance with P001 or P002, as appropriate. Transformers and condensers and other devices may be transported in leakproof metal packagings which are capable of containing, in addition to the devices, at least 1.25 times the volume of the liquid present in them. There shall be sufficient absorbent material in the packagings to absorb at least 1.1 times the volume of liquid which is contained in the devices. For road and rail transport these devices may be transported unpackaged when the PCBs are tightly contained within the devices in a manner which will preclude their release during normal conditions of transport.

This packing instruction applies Polychlorinated biphenyls (PCBs), UN 2315, 3151, 3152. This packing instruction was provided by the IMO DSC E&T Group using ADR text.

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Annex 2

PACKING INSTRUCTIONS FOR IBCS

IBC01	PACKING INSTRUCTION	IBC01

The general provisions of 4.1.2 shall be met. Each IBC shall conform to the requirements of Chapter 6.5.

Only metal IBCs (31A, 31B and 31N) are authorized.

[Only liquids with a vapour pressure less than or equal to 110 kPa at 50 °C, or 130 kPa at 55 °C, are authorized in IBCs.] ***(Need to consider this requirement further)***

IBC02	PACKING INSTRUCTION	IBC02

The general provisions of 4.1.2 shall be met. Each IBC shall conform to the requirements of Chapter 6.5.

(1) The following IBCs are authorized:

(a) Metal: 31A, 31B and 31N;

(b) Rigid plastics: 31H1 and 31H2;

(c) Composites: 31HZ1.

(2) [Only liquids with a vapour pressure less than or equal to 110 kPa at 50 °C, or 130 kPa at 55 °C, are authorized in IBCs.] ***(Need to consider this requirement further)***

IBC03	PACKING INSTRUCTION	IBC03

The general provisions of 4.1.2 shall be met. Each IBC shall conform to the requirements of Chapter 6.5.

(1) The following IBCs are authorized:

(a) Metal: 31A, 31B and 31N;

(b) Rigid plastics: 31H1 and 31H2;

(c) Composites: 31HZ1 and 31HZ2.

(2) [Only liquids with a vapour pressure less than or equal to 110 kPa at 50 °C, or 130 kPa at 55 °C, are authorized in IBCs.] ***(Need to consider this requirement further)***

IBC04	PACKING INSTRUCTION	IBC04

The general provisions of 4.1.2 shall be met. Each IBC shall conform to the requirements of Chapter 6.5.

(1) The following IBCs are authorized:

(a) Metal: 11A, 11B, 11N, 21A, 21B, 21N, 31A, 31B and 31N;

(b) Rigid plastics: 11H1, 11H2, 21H1 and 21H2;

(c) Composites: 11HZ1, 11HZ2, 21HZ1 and 21HZ2.

(2) Packing Group I solids are only authorized in metal IBCs with a capacity of not more than 3 m^3 and in rigid plastics, composite, flexible, fibreboard and wooden IBCs with a capacity of not more than 1.5 m^3.

IBC05 **PACKING INSTRUCTION** **IBC05**

The general provisions of 4.1.2 shall be met. Each IBC shall conform to the requirements of Chapter 6.5.

(1) The following IBCs are authorized:

(a) Metal: 11A, 11B, 11N, 21A, 21B, 21N, 31A, 31B and 31N;
(b) Rigid plastics: 11H1, 11H2, 21H1 and 21H2;
(c) Composite: 11HZ1, 11HZ2, 21HZ1 and 21HZ2;
(d) Fibreboard: 11G;
(e) Wooden: 11C, 11D and 11F;
(f) Flexible: 13H1, 13H2, 13H3, 13H4, 13H5, 13L1, 13L2, 13L3, 13L4, 13M1 or 13M2.

(2) The following additional requirements apply to the use of IBCs specified in this packing instruction:

(a) For Packing Group I substances, IBCs shall be transported in closed freight containers or closed transport vehicles; ***(This could be a special provision to conform to the guidelines since it is not a packaging requirement)***
(b) Flexible, fibreboard and wooden IBCs shall not be used for liquids or materials that may become liquid during transport;
(c) Flexible, fibreboard, wooden IBCs and composite IBCs with a fibreboard outer body, containing Packing Group II substances shall be transported in closed freight containers or closed transport vehicles; ***(This could be a special provision to conform to the guidelines since it is not a packaging requirement)***
(d) Packing Group I solids are only authorized in metal IBCs with a capacity not exceeding 3 m^3 and in rigid plastics, composite, flexible, fibreboard and wooden IBCs with a capacity not exceeding 1.5 m^3.

IBC06 **PACKING INSTRUCTION** **IBC06**

The general provisions of 4.1.2 shall be met. Each IBC shall conform to the requirements of Chapter 6.5.

(1) The following IBCs are authorized:

Metal: 11A, 11B, 11N, 21A, 21B, 21N, 31A, 31B and 31N.

IBC07 **PACKING INSTRUCTION** **IBC07**

The general provisions of 4.1.2 shall be met. Each IBC shall conform to the requirements of Chapter 6.5.

(1) The following IBCs are authorized:

(a) Metal: 11A, 11B, 11N, 21A, 21B, 21N, 31A, 31B and 31N;
(b) Rigid plastics: 11H1, 11H2, 21H1 and 21H2;
(c) Composite: 11HZ1, 11HZ2, 21HZ1 and 21HZ2;
(d) Fibreboard: 11G;
(e) Wooden: 11C, 11D and 11F.

(2) The following additional requirements apply to the use of IBCs specified in this packing instruction:

(a) For Packing Group I substances, IBCs shall be transported in closed freight containers or closed transport vehicles; ***(This could be a special provision to conform to the guidelines since it is not a packaging requirement)***
(b) Flexible, fibreboard and wooden IBCs shall not be used for liquids or materials that may become liquid during transport;
(c) Flexible, fibreboard, wooden IBCs and composite IBCs with a fibreboard outer body, containing Packing Group II substances shall be transported in closed freight containers or closed transport vehicles; ***(This could be a special provision to conform to the guidelines since it is not a packaging requirement)***
(d) Packing Group I solids are only authorized in metal IBCs with a capacity not exceeding 3 m^3 and in rigid plastics, composite, flexible, fibreboard and wooden IBCs with a capacity not exceeding 1.5 m^3; ***(This could be a special provision to conform to the guidelines since it is not a packaging requirement)***

IBC08	PACKING INSTRUCTION	IBC08
IBCs are only authorized when approved by the competent authority		

IBC09	PACKING INSTRUCTION	IBC09
This packing instruction applies to clinical and medical waste. The general provisions of 4.1.1 or 4.1.2 shall be met. Each packaging shall conform to the requirements of Chapter 6.1. Each IBC shall conform to the requirements of Chapter 6.5. The following packagings are authorized: Rigid, leakproof packagings or IBCs in accordance with the requirements of Chapters 6.1 or 6.5 for solids, at the Packing Group II performance level, shall be used provided there is sufficient absorbent material to absorb the entire amount of liquid present and the packaging or IBC is capable of retaining liquids. Packages containing larger quantities of liquid shall be carried in rigid packagings or IBCs in accordance with the requirements of Chapters 6.1 or 6.5 respectively at the Packing Group II performance level for liquids. Packagings or IBCs intended to contain sharp objects such as broken glass and needles shall be resistant to puncture and retain liquids under the performance test conditions in Chapters 6.1 for packagings and Chapter 6.5 for IBCs.		

Issues and inconsistencies in the IMDG Code methodology for assigning IBC requirements to specific substances

-In the IMDG Code some Class 3.2 PG II and PG III no sub-risk substances are not authorized in 31HZ2 composite IBCs. However, other Class 3.2 PG II and PG III no sub-risk substances are authorized in 31HZ2 composite IBCs. Why can t 31HZ2 IBCs be allowed for all Class 3 PG II and PG III no sub-risk substances?

-Class 3.1 PG II no sub-risk substances are only authorized in metal IBCs in the Code. Some of the substances are subject to special requirement 1 (see IMDG Code page 0222) which only allows the substances in IBCs if the vapour pressure does not exceed 110 kPa at 50 °C or 130 kPa at 55 °C. This appears overly restrictive. We believe all Class 3, PG II substance with no sub-risk should be authorized in metal, rigid plastic and composite IBCs.

-In the Code special requirement 4 (requires IBCs to be hermetically sealed (vapour tight) is used quite liberally. In 10.9.1 hermetically sealed is defined as a packaging with a vapour tight closure. In the introduction to the classes it does not appear that hermetically sealed is defined any better (i.e. In the into to Class 3 para. 3.2.2 states, "Packagings immediately containing flammable liquids should be hermetically sealed.")

In the Code no Class 4.2 PG II substances having subsidiary risks are authorized in IBC's. This is overly restrictive and inconsistent with other regulations.

The Code in many cases applies the same IBC assignments for PG I, PG II and III substances (i.e. UN 3151). IBC assignments should take into account the level of risk posed by a substance.

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Annex 3

SPECIAL PROVISIONS

Note *Unless otherwise identified these special provisions are currently in Chapter 3.3 of the UN Model Regulation. Some or part of these are proposed to be incorporated into the packing instructions consistent with the format of the packing instructions currently in the Model Regulation and the guiding principles adopted by the Sub-Committee. The requirements unrelated to packaging will be retained in Chapter 3.3. The following is a proposed list of the special provisions currently in the Model regulation along with proposed amendments and additional provisions which are necessary to conform to the guiding principles developed by the Sub-Committee. Special packaging provisions which are not proposed for incorporation into the packing instructions would be included in a new section 4.1.3.8. The majority of special packaging provisions are proposed to be incorporated into specific packing instructions. Only those which apply to a large number of substance or articles will be listed in 4.1.3.8 and column 9 of the Dangerous Goods List.*

15,16, 18 *Special provisions (SPs) 15, 16 and 18 are not addressed because even though they specify minimum quantities per package they are directly related to classification. It is proposed that these SPs remain in Chapter 3.3 without amendment.*

25 ~~Nitroglycerin solution in alcohol may be transported under this entry only when the solution is packed in metal cans of not more than 1 litre capacity each, overpacked in a wooden box containing not more than 5 litres. Metal cans shall be completely surrounded with absorbent cushioning material. Wooden boxes shall be completely lined with a suitable material impervious to water and nitroglycerin.~~ *This SP is proposed to be incorporated as P300 (see Annex 1).*

29 This substance is exempt from labelling ~~and packaging tests~~, but shall be marked with the appropriate class or division and the packing group. *SP 29 should remain in Chapter 3.3. The deleted text should be included in the appropriate packing instructions (P902 for UN 2216, P002 for UN 1363, 1365, 1386, 2217, 2698) under particular packing provisions and exceptions. The text would be: "Packaging tests in accordance with Chapter 6.1 are not necessary". This would apply to UN 1363, 1365, 1386, 2217 and 2698 (see Annex 1).*

80 ~~Packagings shall be so constructed that explosion is not possible by reason of increased internal pressure.~~ *This SP currently applies to nitrocellulose entries, UN 2555, 2556, 2557 and 3270. In this proposal these substances and articles would be assigned to P002. This SP is proposed to be incorporated in P002 as a particular packing provision and exception (see Annex 1).*

114 ~~This substance may be carried in quantities of not more than 500 grams per package.~~ *This SP only applies to Dipicryl sulphide, wetted, UN 2852. This requirement should more appropriately be placed in a packing instruction according to the agreed upon guidelines. This SP is proposed to be incorporated in P403 (see Annex 1).*

117 Subject to these Regulations only when transported by sea. **[Fish meal or fish scrap shall not be transported if the temperature at the time of loading exceeds 35°C or 5°C above the ambient temperature, whichever is higher. Fish scrap or fish meal shall contain at least 100 ppm of anti-oxidant (ethoxyquin) at the time of shipment.]** *The latter two sentences where taken from the IMDG Code. It is proposed that they be added to SP 117.*

123 ~~For air transport, the packagings shall meet Packing Group I requirements~~ *This is proposed for deletion because it is proposed to be incorporated in P800 for Gallium and Mercury.*

132 ~~Unless otherwise approved by the competent authority, packaging shall be a fibre drum which may be lined, the maximum contents of which shall not exceed 50 kg.~~ During the course of transport, this substance shall be protected from direct sunshine and stored (or kept) in a cool and well ventilated place, away from all sources of heat. *SP 132 should be retained in Chapter 3.3. The packaging provision proposed for deletion is proposed to be included in packing instruction P406. This applies to UN 2956 and 3251.*

187 ~~Except for transport by the air mode, packaging tests are not necessary for substances of Packing Groups II and III in quantities of 5 litres or less per metal or plastics packaging~~

~~(a) In palletized loads, e.g. individual packagings placed or stacked and secured by strapping, shrink or stretch-wrapping or other suitable means to a pallet; or~~

~~(b) As an inner packaging of a combination packaging with a maximum total gross mass of 40 kg.~~

This SP is proposed for deletion because it is proposed to be incorporated in P001 as a particular packing provision or exception. This applies to UN 1133, Adhesives, UN 1210, Printing Ink, UN 1263, Paint and UN 1866 Resin solution (see Annex 1).

201 Lighters and lighter refills shall comply with the provisions of the country in which they were filled. They shall be provided with protection against inadvertent discharge. The liquid portion of the gas shall not exceed 85% of the capacity of the receptacle at 15 °C. The receptacles, including the closures, shall be capable of withstanding an internal pressure of twice the pressure of the liquefied petroleum gas at 55 °C. The valve mechanisms and ignition devices shall be securely sealed, taped or otherwise fastened or designed to prevent operation or leakage of the contents during transport. ~~The lighters or lighter refills shall be tightly packed to prevent inadvertent operation of the release devices.~~ Lighters shall not contain more than 10 g of liquefied petroleum gas. Lighter refills shall not contain more than 65 g of liquefied petroleum gas. *This SP should be amended by deleting the penultimate sentence. The SP should be retained in Chapter 3.3. The deleted sentence is proposed to be incorporated in packing instruction P201.*

209 The gas shall be at a pressure corresponding to ambient atmospheric pressure at the time the containment system is closed and this shall not exceed 105 kPa absolute. ~~The gas shall be contained in hermetically sealed glass or metal inner packagings and with a maximum net quantity per package of 5 litres or, in the case of a toxic gas, a maximum net quantity per package of 1 litre.~~ *This SP should be amended by deleting the last sentence. The SP should be retained in Chapter 3.3. The deleted text is proposed for incorporation in packing instruction P200. This applies to UN 3167, 3168 and 3169 (Gas samples).*

214 ~~For certain self-reactive substances of types B or C, a smaller packaging than that allowed by packing methods OP5 or OP6 respectively shall be used (see 4.1.5 and 2.4.2.3.2.4).~~ *This SP should be deleted from Chapter 3.3 and incorporated in P520. This applies to a number of Type B and C self-reactive substances, UN 3221, 3222, 3223, 3224, 3231, 3232, 3233 and 3234 (see Annex 1).*

In SP 216, SP 217 and SP 218 the sentence "Each packaging shall correspond to a design type that has passed a leakproofness test at the Packing Group II level." would be deleted. The remainder of the SPs should be retained in Chapter 3.3. The deleted text is proposed to be incorporated as a particular packing provision or exception in P002 (see Annex 1). This applies to solids containing flammable liquids (UN 3175), toxic liquids (UN 3243) and corrosive liquids (UN 3244).

219 ~~Substances transported under this entry shall be packaged in accordance with 2.6.3.3.4.~~ Genetically modified micro-organisms which are infectious shall be transported as UN 2814 or UN 2900. *The first sentence of this SP is proposed to be incorporated in P907 as a packing instruction for* genetically modified micro-organisms, *UN 3245. The reference to 2.6.3.3.4 is not correct since this paragraph does not exist. The Sub-Committee should consider whether the second sentence of SP 219 should be retained in Chapter 3.3 since 2.6.3.1.4(a) also states "Genetically modified micro-organisms which meet the definition of an infectious substance given above shall be classified in Division 6.2 and assigned to UN 2814 or to UN 2900".*

221 Substances included under this entry shall not be of Packing Group I and shall have a maximum net quantity per package of 5 litres or 5 kg. *This SP applies to Medicines (UN 1851, 3248 and 3249) should be retained in Chapter 3.3 without amendment since the quantity per package is a condition of classification and use of the medicines entries.*

229 ~~To be transported in strong outer packagings.~~ *This special provision applies to UN 1057, 1044, 1950, 2037 and 3150. It is proposed that this SP be deleted since it is proposed to be incorporated in P201 (UN 1057) and P202 (UN 1044, 1950, 2037 and 3150).*

230 *In SP 230 paragraph (g) should be deleted.*

231 ~~When lithium cells and batteries included in Class 9 are packed with equipment, they shall be packed in inner fibreboard packagings that meet the requirements for Packing Group II. When lithium cells and batteries included in Class 9 are contained in equipment, the equipment shall be packed in strong outer packagings in such a manner as to prevent accidental operation during transport.~~ *This SP would be incorporated in packing instruction P906.*

233 ~~These substances shall be packaged in accordance with standards specified by the competent authority of the country of origin.~~ *This SP applies to Elevated temperature solid, n.o.s., UN 3258 only. This SP should be deleted and P004 (competent authority packing instruction) should be assigned to this entry in column 8 of the DGL.*

235 This entry applies to articles which may be classified in Class 1 in accordance with 2.1.1.1, 2.1.1.2 and 2.1.1.3, which are used as life-saving vehicle air bags or seat-belts, when transported as component parts and when these articles as presented for transport have been tested in accordance with Test series 6 (c) of Part I of the Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria, with no explosion of the device, no fragmentation of device casings, and no projection hazard or thermal effect which would significantly hinder fire-fighting or other emergency response efforts in the immediate vicinity. If the air bag inflator unit satisfactorily passes the series 6(c) test, it is not necessary to repeat the test on the air bag module itself. ~~Such air bag inflators or modules or seat-belt pretensioners may be transported unpackaged in dedicated handling devices or transport units when transported from where they are manufactured to an assembly plant.~~ Air bags or seat-belts installed in vehicles or in completed vehicle components such as steering columns, door panels, seats, etc. are not subject to these Regulations. *This SP should be retained in Chapter 3.3. The text proposed to be deleted would be incorporated in packing instruction P905.*

236 Polyester resin kits consist of two components: a base material (Class 3, Packing Group II or III) and an activator (organic peroxide), each separately packed in an inner packaging. The organic peroxide shall be type D, E or F, not requiring temperature control, and be limited to a quantity of 125 ml per inner packaging if liquid, and 500 g if solid. The components may be placed in the same outer packaging provided they will not interact dangerously in the event of leakage. Packing group shall be II or III, according to the criteria for Class 3, applied to the base material. The quantity limit shown in Column 7 of the Dangerous Goods List applies to the base material. *It is proposed that this SP be retained in Chapter 3.3. Although this SP addresses some packaging issues, it is proposed that the SP not be amended since the packaging provisions are closely linked to the classification of the polyester resin kits.*

237 The nitrogen content of the nitrocellulose shall not exceed 11.5%. ~~Each single filter sheet shall be packed between sheets of glazed paper. The portion of glazed paper between the filter sheets shall be not less than 65%, by mass.~~ The membrane filters/paper arrangement shall not be liable to propagate a detonation as tested by one of the tests described in the Recommendations on the Transport of Dangerous Goods, Tests and Criteria, Part I, Test series 1(a). *The second and third sentences should be deleted. These are packaging provisions but are really not considered necessary. A separate US proposal addresses this issue.*

In SP 238 the last sentence should be deleted since this is proposed to be incorporated in P802.

239 Except for air transport, batteries or cells shall not contain dangerous goods other than sodium, sulphur and/or polysulphides. Batteries or cells shall not be offered for transport at a temperature such that liquid elemental sodium is present in the battery or cell unless approved and under the conditions established by the competent authority.

Cells shall consist of vapour tight metal casings which fully enclose the dangerous goods and which are so constructed and closed as to prevent the release of the dangerous goods under normal conditions of transport. ~~Cells shall be placed in suitable outer packagings with sufficient cushioning material to prevent contact between cells and between cells and the internal surfaces of the outer packaging, and to ensure that no dangerous movement of the cells within the outer packaging occurs in transport. Packagings shall be tested and marked according to the provisions applicable to Packing Group II solids.~~

Batteries shall consist of cells secured within and fully enclosed by a metal casing so constructed and closed as to prevent the release of the dangerous goods under normal conditions of transport. ~~Batteries may be offered for transport and transported unpacked or in protective enclosures (e.g. in fully enclosed or wooden slatted crates) that are not subject to the packaging testing provisions of these Regulations.~~

Batteries installed in vehicles (UN 3171) are not subject to these Regulations. *The SP should be retained in Chapter 3.3. It only applies to UN 3292. This SP should be amended by deleting the second paragraph except for the first sentence and the last sentence of the last paragraph. The text proposed to be deleted is proposed to be incorporated in packing instruction P405.*

246 This substance shall be packed in accordance with packing method OP6 (see applicable packing instruction). During transport, it shall be protected from direct sunshine and stored (or kept) in a cool and well-ventilated place, away from all sources of heat. *This SP only applies to 2-Bromo-2-nitropropane-1,3-diol, UN 3231. Although this SP addresses a packaging requirements it is proposed that it be retained in Chapter 3.3 especially since it only deals with one substance.*

~~248 Substances in Division 1.5D may be transported in metal, flexible, rigid plastics and composite intermediate bulk containers (IBCs) that meet the applicable requirements of Chapter 6.5 at the Packing Group II level of performance. Flexible IBCs may only be used for solid substances.~~

SP 248 should be deleted and incorporated in packing instruction 117.

251 The entry CHEMICAL KIT or FIRST AID KIT is intended to apply to boxes, cases etc. containing small quantities of various dangerous goods which are used for medical, analytical or testing purposes. Such kits may not contain dangerous goods listed in 3.4.1.

Components shall not react dangerously (see 4.1.1.6). ~~Dangerous goods in kits shall be packed in inner packagings which shall not exceed either 250 ml or 250 g and shall be protected from other materials in the kit.~~ The total quantity of dangerous goods in any one kit shall not exceed either 1 l or 1 kg. ~~The maximum total quantity of dangerous goods in any one outer package shall not exceed 10 kg.~~ The packing group assigned to the kit as a whole shall be the most stringent packing group assigned to any individual substance in the kit. *These requirements are difficult to identify as packaging or classification. They are very closely intertwined. The Sub-Committee should decide how to handle this.*

~~Kits shall be packed in packagings which meet the requirements appropriate to the packing group assigned to the kit as a whole.~~

Kits which are carried on board vehicles for first-aid or operating purposes are not subject to these Regulations. *The requirements proposed for deletion would be incorporated in packing instruction 904.*

284 An oxygen generator, chemical, containing oxidizing substances shall meet the following conditions:

(a) The generator when containing an explosive actuating device shall only be transported under this entry when excluded from Class 1 in accordance with paragraph 2.2.1.3 of these Model Regulations;

(b) ~~In addition to the requirements of Packing Group II applicable to the package,~~ the generator, without its packaging, shall be capable of withstanding a 1.8 m drop test onto a rigid, non-resilient, flat and horizontal surface, in the position most likely to cause damage, without loss of its contents and without actuation;

(c) When a generator is equipped with an actuating device, it shall have at least two positive means of preventing unintentional actuation; and

~~(d) The generator(s) shall be transported in a package which will meet the following requirements when one generator in the package is actuated:~~

~~(i) other generators in the package will not be actuated;~~

~~(ii) packaging material will not ignite; and~~

~~(iii) the outside surface temperature of the completed package shall not exceed 100 °C.~~

Paragraph d should be deleted since the text is incorporated in P500.

New special provisions proposed to be added in Chapter 3.3:

A new SP would be added in Chapter 3.3 for UN1331, UN1944, UN1945 and UN2254 as follows:

XXX The following definitions apply to matches:

(1) Fusee matches are matches the heads of which are prepared with a friction-sensitive igniter composition and a pyrotechnic composition which burns with little or no flame, but with intense heat.

(2) Safety matches are matches combined with or attached to the box, book or card that can be ignited by friction only on a prepared surface.

(3) Strike anywhere matches are matches that can be ignited by friction on a solid surface.

(4) Wax "Vesta" matches are matches that can be ignited by friction either on a prepared surface or on a solid surface.

A new SP would be added in Chapter 3.3 for UN 1944 and 1945 as follows:

XXX Safety matches and wax "Vesta" matches in outer packagings not exceeding 25 kg gross mass are not subject to any other requirement (except marking) of this Model Regulation when packaged in accordance with packing instruction P404.

A new SP should be added in Chapter 3.3 as follows:

XXX Batteries need not be individually marked and labelled if the pallet bears the appropriate mark and label. *This would apply to UN 2794, 2795 and 3028.*

A New SP should be added in Chapter 3.3 for UN2990 and UN3072 as follows:

XXX These articles may contain:
(1) Division 2.2 compressed gases.
(2) Signal devices (Class 1) which may include smoke and illumination signal flares; signal devices must be packed in plastic or fibreboard inner packagings.
(3) Electric storage batteries.
(4) First aid kits.
(5) Strike anywhere matches.

A New SP should be added in Chapter 3.3 for UN 1845 as follows:

XXX For each shipment by air exceeding 2.3 kg per package, advance arrangements shall be made between the shipper and each carrier. Not more than 200 kg of solid carbon dioxide may be transported in any one cargo compartment or bin on any aircraft except by specific and special written arrangement between the shipper and the aircraft operator.

Transport units containing solid carbon dioxide, when transported on board ocean vessels, shall be conspicuously marked on two sides "WARNING CO_2 SOLID (DRY ICE)." Other packagings containing solid carbon dioxide, when transported on board ocean vessels, shall be marked "CARBON DIOXIDE, SOLID-DO NOT STOW BELOW DECKS."

Carbon dioxide, solid (dry ice) is excepted from the shipping paper requirements if the package is marked "Carbon dioxide, solid" or "Dry ice" and is marked with an indication that the substance being refrigerated is used for diagnostic or treatment purposes (e.g., frozen medical specimens).

This is taken from the ICAO TI PI 904 and the IMDG Code (see page 9025)

IBC Special packing provisions:

~~B1 Only authorized in metal IBCs~~ *This is no longer necessary because we now have IBC packing instructions for liquids and solids (IBC01 & IBC 06 respectively). This is consistent with the principles adopted by the Sub-Committee*

B2 IBCs shall be provided with a device to allow venting during transport. The inlet to the pressure relief valve shall be sited in the vapour space of the IBC under maximum filling conditions during transport.

B3 Flexible IBCs (13M2) shall be fitted with a coating or liner. *We need to consider if and when this is necessary. The IMDG Code has a similar requirement which is covered by special requirements 3, 4 and 14 in the introduction of the List of Solid Substances Suitable for Transport in IBCs.*

B4 Flexible, fibreboard or wooden IBCs shall be sift-proof and water-resistant. *We need to consider if and when this is necessary. The IMDG Code has a similar requirement which is covered by the special requirements 8, 10 and 14 in the introduction of the List of Solid Substances Suitable for Transport in IBCs.*

~~B5 Not authorized in 31HZ2 composite IBCs~~ *This is no longer necessary because we now have IBC packing instruction IBC02 which does not allow 31HZ2 composite IBCs. This is consistent with the principles adopted by the Sub-Committee.*

~~B6 Not authorized in flexible IBCs~~ *This is no longer necessary because we now have IBC packing instruction IBC07 which does not allow flexible IBCs. This is consistent with the principles adopted by the Sub-Committee.*

Do we need a B note to address hermetically sealed/vapour tight? *IMDG Code special requirement 5 (solids) and 4 (liquids). CFR 49 - B106. It would be preferable to incorporate this requirement into the packing instruction. It is not user friendly to use this type of note to for instance exclude flexible, fiberboard or wooden IBCs. It is more user friendly to specify the exact IBCs which are allowed and to indicate some performance requirement which defines hermetically sealed or vapour tight.*

B7 No bottom openings. *The Sub-Committee should decide whether this is necessary and which substances it should be applied to.*

Annex 4

METHOD FOR ASSIGNING PACKING INSTRUCTIONS

Class or Division	Subsidiary risk	Packing group	Packaging instruction
2.1	Irrespective of sub-risk	-	P200
2.2	Irrespective of sub-risk	-	P200 Some articles-P003
2.3	Irrespective of sub-risk	-	P200
3	-	I	P001 *UN 3064*-P300
3	6.1	I	P001
3	8	I	P001
3	6.1/8	I	P001 UN 3165-P301
3	-	II	P001
3	6.1	II	P001
3	8	II	P001
3	6.1/8	I	P001
3	-	III	P001
3	6.1	III	P001
3	8	III	P001
4.1	-	I	P001
Desensitized explosives			P405
4.1	6.1	I	P002
4.1	-	II	P002 Sodium batteries-P407
4.1 Self-Reactive Substance	-	II	P520
4.1	6.1	II	P002
4.1	8	II	P002
4.1	-	III	P002 Matches-P406Isosorbide-5-mononitrate & Musk xylene-P408
4.1	6.1	III	P002

Class or Division	Subsidiary risk	Packing group	Packaging instruction
4.1	6.1	III	P002
4.1	8	III	P002
4.2	-	I	P400 for Liquids P403for Solids
4.2	4.3	I	P400
4.2	6.1	I	Phosphorus White or Yellow -P404
4.2	8	I	P400 for Liquids P403for Solids
4.2	-	II	P002
4.2	6.1	II	P001 for Liquids P002 for Solids
4.2	8	II	P001 for Liquids P002 for Solids
4.2	-	III	P002
4.2	6.1	III	P001 for Liquids P002 for Solids
4.2	8	III	P001 for Liquids P002 for Solids
4.3	-	I	P402for Liquids P403 for Solids
Chlorosilanes		I	P401
4.3	3	I	P402 for Liquids P403 for Solids
4.3	4.1	I	P402 for Liquids P403 for Solids
4.3	4.2	I	P402 for Liquids P403 for Solids
4.3	6.1	I	P402 for Liquids P403 for Solids
4.3	8	I	P402
4.3	3, 8	I	P402
4.3	-	II	P001 for Liquids P002 for Solids
4.3	3	II	P001
4.3	4.1	II	P002
4.3	4.2	II	P002

Class or Division	Subsidiary risk	Packing group	Packaging instruction
4.3	6.1	II	P001 for Liquids P002 for Solids
4.3	8	II	P001 for Liquids P002 for Solids
4.3	-	III	P001 for Liquids P002 for Solids
4.3	3	III	P001
4.3	4.1	III	P002
4.3	4.2	III	P002
4.3	6.1	III	P001 for Liquids P002 for Solids
4.3	8	III	P001 for Liquids P002 for Solids
5.1	-	I	P001
5.1	4.1	I	P099
5.1	4.3	I	P099
5.1	6.1	I	P001 for Liquids P002 for Solids
5.1	8	I	P001 for Liquids P002 for Solids
5.1	6.1/8	I	To be proposed in a separate paper
5.1	-	II	P001 for Liquids P002 for Solids Oxygen generator-P500
5.1	4.1	II	P099
5.1	4.3	II	P099
5.1	6.1	II	P001 for Liquids P002 for Solids
5.1	8	II	P001 for Liquids P002 for Solids
5.1	-	III	P001 for Liquids P002 for Solids
5.1	6.1	III	P001 for Liquids P002 for Solids
5.1	8	III	P001 for Liquids P002 for Solids

Class or Division	Subsidiary risk	Packing group	Packaging instruction
5.2	-	II	P001 for Liquids P002 for Solids Organic Peroxides- P520/P521/P522
6.1	-	I	P001 for Liquids P002 for Solids
6.1(TIH)	-	I	To be proposed in a separate paper Hydrogen cyanide-P200 Hydrocyanic acid-P200
6.1	3	I	P001
6.1(TIH)	3	I	To be proposed in a separate paper Nickel carbonyl-P200
6.1	4.1	I	P001
6.1	4.2 pyrophoric	I	P400
6.1	4.2 self-heating	I	P001
6.1	4.3 (TIH)	I	To be proposed in a separate paper
6.1	4.3 (not TIH)	I	P001
6.1	5.1 (TIH)	I	To be proposed in a separate paper
6.1	5.1 (not TIH)	I	P001
6.1	8 (TIH)	I	To be proposed in a separate paper
6.1	8 (not TIH)	I	P001
6.1	3,8 (TIH)	I	To be proposed in a separate paper
6.1	-	II	P001 for Liquids P002 for Solids
6.1(TIH)	-	II	To be proposed in a separate paper
6.1	3	II	P001 for Liquids
6.1(TIH)	3	II	To be proposed in a separate paper
6.1	4.1	II	P002
6.1	4.2 self-heating	II	P002
6.1	4.3 (not TIH)	II	P001for Liquids P002 for Solids

Class or Division	Subsidiary risk	Packing group	Packaging instruction
6.1	5.1 (not TIH)	II	P001for Liquids
6.1	8 (not TIH)	II	P001for Liquids P002 for Solids
6.1	3, 8	II	P001
6.1	-	III	P001for Liquids P002 for Solids
6.1	3	III	P001
6.2	-	-	P620/P621
7	-	-	To be developed
7	4.2 (pyrophoric)	-	To be developed
7	5.1	-	To be developed
7	8	-	To be developed
8	-	I	P001for Liquids P002 for Solids
8	3	I	P001
8	3, 6.1	I	P001
8	4.1	I	P001for Liquids P002 for Solids
8	4.2 (self-heating)	I	P001for Liquids P002 for Solids
8	4.3	I	P001for Liquids P002 for Solids
8	5.1	I	P001for Liquids P002 for Solids
8	5.1/6.1 (Nitric acid red fuming only)	I	To be proposed in a separate paper
8	6.1 (TIH)	I	To be proposed in a separate paper
8	6.1 (not TIH)	I	P001for Liquids P002 for Solids
8	-	II	P001for Liquids P002 for Solids
8	3	II	P001
8	4.1	II	P002
8	4.2 self-heating	II	P001 for Liquids P002 for Solids

Class or Division	Subsidiary risk	Packing group	Packaging instruction
8	4.3	II	P001 for Liquids P002 for Solids
8	5.1	II	P001 for Liquids P002 for Solids
8	6.1 (TIH)	II	To be proposed in a separate paper
8	6.1 (not TIH)	II	P001 for Liquids P002 for Solids
8	3, 6.1 (TIH)	II	To be proposed in a separate paper
8	3, 6.1	II	P001
8	-	III	P001 for Liquids P002 for Solids Gallium, Mercury-P800
8	6.1	III	P001 for Liquids P002 for Solids
9	-	II	P001 PCBs-P909 Asbestos-P900 Lithium batteries-906
9	-	III	P001 for Liquids P002 for Solids Zinc Dithionite-P003 Carbon dioxide, solid-P901 Fish meal-P902 Polymeric beads-P903 Chemical kit-904 Air bags-905 Genetically modified microorganism-907 Life saving appliance-908

Annex 5

METHODOLOGY FOR ASSIGNING IBC PACKING INSTRUCTIONS

Class or Division	Subsidiary risk	PG	Proposed IBC Packing Instructions	49CFR Assignments and observations	IMDG Code (Amdt. 28) Assignments and observations	RID/ADR Assignments and observations
3	-	I	No PG I Liquids	No PG I Liquids	No PG I Liquids	No PG I Liquids
3	6.1	I	No PG I liquids	No PG I Liquids	No PG I Liquids	No PG I Liquids
3	8	I	No PG I liquids	No PG I Liquids	No PG I Liquids	No PG I Liquids
3	6.1 8	I	No PG I liquids	No PG I Liquids	No PG I Liquids	No PG I Liquids
3	-	II	IBC02	IBC03 (242, B101 on a case by case basis)-fairly consistent with IMDG Code	Class 3.1, PG II-metal only-IBC01 Class 3.2,PGII-IBC02 Class 3.2, PGII III-IBC03	IBC02, except nitromethane
3	6.1	II	IBC02	IBC01 (243), however a dual hazard material may be assigned IBC02 (242) if the subsidiary hazard is Division 6.1, PG III	Class 3.2, PG II, III-IBC02 (rigid plastic and 31HZ1 only with a CAA). Some substances only allowed in metal IBCs (ie. UN 2335, 2360, 2486, 2478) and in some cases only with a CAA. These are all amines with fp. <0°C	IBC02
3	8	II	IBC02	IBC01(243, B100 and B101 on a case by case basis)-fairly consistent with IMDG Code	Class 3.2, PG II III-IBC02 SR #1,4,5 & 8 used inconsistently. In some cases these substances only allowed in metal IBCs (ie UN 1125, 1158, 1214, 1296)	IBC02
3	6.1 8	II	IBC01	IBC01(243)	Rigid plastic and 31HZ2 only with CAA	IBC02
3	-	III	IBC03	IBC03 (242)	IBC03	IBC03
3	6.1	III	IBC03	IBC03 (242)	IBC02 for UN1228, 2310, 2481. IMO should consider allowing 31HZ2 composite IBCs for this group of low hazard substances. IBC01 for UN 2478	IBC03
3	8	III	IBC03	IBC03 (242)	IBC02, IMO should consider allowing 31HZ2 composite IBCs for this group of low hazard substances.	IBC03
4.1	-	I	No PG I substances	No PG I substances	No PG I substances	No PG I substances
4.1	6.1	I	No PG I substances	No PG I substances	No PG I substances	No PG I substances
4.1	-	II	No liquids allowed IBC05, B3, B4 except for wetted powders-IBC04 and sulphides and hydrides-IBC06	IBC05 (240). UN 1326, 1871 & 1358 are assigned to (241). Difference-240 allows 31A, 31B, 31N; 241 has vapor pressure limit in (d)(2)(ii). Most flammable solids mixed with flammable liquids not allowed	The assignments are very inconsistent in the Code. In some cases only metal is allowed. In other cases all IBCs suitable for solids are allowed-IBC05.	No PG I substances

Class or Division	Subsidiary risk	PG	Proposed IBC Packing Instructions	49CFR Assignments and observations	IMDG Code (Amdt. 28) Assignments and observations	RID/ADR Assignments and observations
4.1 Self-Reactive Substances	-	II	No self-reactive substances allowed.	No self-reactive substances allowed	No self-reactive substances allowed	No self-reactive substances allowed
4.1	6.1	II	IBC04 Only solids [N.oor. entries should be IBC08]	IBC04 (242, B106) B106=vapor tight IBCs only	IBC04 for UN 3179 (inorganic). IMO does not currently authorize UN 1868 (listed as PG III/error) or 2926 (flammable solid, toxic, organic)	IBC05 UN3276, 3178, 1339, 1341, 1342, 2989, 1437 and 1871 not allowed (these are n.o.s entries).
4.1	8	II	IBC04 Only solids	IBC04 (242, B106) B106=vapor tight IBCs only	IBC04. IMO does not authorize UN 2925 while 3180 is allowed	IBC04 for liquids IBC05 for solids
4.1	6.1	III	IBC05, B3-except powders and resonates-IBC07 Only solids	IBC04 (242, B106) B106=vapor tight IBCs only	IBC05 with special requirement 3 (B3, B4) for some substances	IBC05 for solids
4.1	8	III	IBC05, B3-except powders and resonates-IBC07 Only solids	IBC04 (242, B106) B106=vapor tight IBCs only	The Code does not include separate assignments for PG II & III entries. IBC04(2,5,7)-3180, 2925	IBC05 for solids
4.2	-	I	No PG I substances	No PG I substances	No PG I substances	No PG I substances
4.2	4.3	I	No PG I substances	No PG I substances	No PG I substances	No PG I substances
4.2	6.1	I	No PG I substances	No PG I substances	No PG I substances	No PG I substances
4.2	8	I	No PG I substances	No PG I substances	No PG I substances	No PG I substances
4.2	-	II	Liquids-IBC03 Solids-IBC05, B3, B4	Liquids-IBC03 (242) Solids-IBC05(241)-UN 1361& 2881-(242) B101 and 106 assigned to some materials	IBC04, except fishmeal UN 1374-all IBCs except flexible if approved by CA	Liquids-IBC03 Solids-IBC05
4.2	4.3	II	No substances in this group	No substances in this group	No substances in this group	No substances in this group
4.2	6.1	II	Liquids-IBC03 Solids- IBC05, B3, B4	Liquids-IBC01 (243) Solids- IBC05(242)	Liquids-UN 3187, 3184-Not allowed Solids-UN 3191, 3128-Not allowed	Liquids-IBC03 Solids-IBC05
4.2	8	II	Liquids-IBC03 Solids- IBC05, B3, B4	Liquids-93C01 (243) Solids- IBC05(242)	Liquids-UN 3185, 3188-Not allowed Solids-UN 3206, 3192, 3126, 1431-Not allowed	Liquids-IBC03 Solids-IBC05
4.2	-	III	Liquids-IBC03 Solids-IBC05, B3	Liquids-IBC03(241) Solids-IBC05(241)-UN 1376, 1932, 2009-(240), UN 2006-Not allowed B101, 105, 106 assigned to some materials.	IBC05-Only solids allowed. Some inconsistencies exist (i.e. CAA req'd for activated carbon, iron oxide, seed cake & titanium disulphide) Only cotton must be in IBCs intended for liquids	Liquids-IBC02 Solids-UN 2002,2006-IBC04 other solids IBC05 except no wood or fibreboard allowed?
4.2	4.3	III	Solids-IBC04 Maneb only	Solid-Rigid plastic IBC only (242, B105). This material may be offered in a powder or paste in which case IBC04 should be allowed	Only UN 2210-IBC04	IBC04

Class or Division	Subsidiary risk	PG	Proposed IBC Packing Instructions	49CFR Assignments and observations	IMDG Code (Amdt. 28) Assignments and observations	RID/ADR Assignments and observations
4.2	6.1	III	Liquids-IBC03 Solids-IBC05, B3	Liquids-IBC03(241) Solids-IBC05(242)	Liquids- Not allowed- UN 3187, 3184 Solids-Not allowed-UN 3191, 3128	
4.2	8	III	Liquids-IBC03 Solids-IBC05, B3	Liquids-IBC03(241, B106) Solids-Rigid plastic IBC(242, B105, 106))	Liquids-Not allowed-UN 3185, 3188 Solids-Not allowed-UN 3206, 3192, 3126, 1431	
4.3		I	No PG I Liquids Solids- IBC06, some not allowed in IBCs on a case by case basis	No PG I Liquids Solids-(242)some not allowed in IBCs on a case by case basis (i.e. UN 1389, 1391, 1415, 2257, 1422, 1420, 1428,	Solids-IBC06- The Code only allows 6 substances. There are other substances which should be allowed in IBCs (i.e. UN 1402)	PG I not allowed
4.3	3	I	No PG I Liquids	No PG I Liquids	No PG I Liquids	No PG I Liquids
4.3	3, 8	I	No PG I Liquids	No PG I Liquids	No PG I Liquids	No PG I Liquids
4.3	4.1	I	IBC06- Only UN 3132	IBC06, (242, B101)	Solid-UN 3132-Not allowed	PG I not allowed
4.3	4.2	I	IBC06 unless the subsidiary hazard is PG III then IBC04 /zinc powder-IBC07	UN1418Magnesium-244, UN3209, 3135-242, B106- Not allowed UN 1436 /zinc dust-IBC05	Solids-UN1436-IBC07 (all IBCs except flexible) UN 1418, 3209 & 3135 not allowed. Why not Magnesium powder?	PG I not allowed
4.3	6.1	I	No PG I Liquids Solids-IBC06 unless the subsidiary hazard is PG III then IBC04	No PG I Liquids Solids-IBC04(242) PG I solids are authorized only in metal IBCs up to 3 m^3 and in rigid plastic, composite flexible, fiberboard and wooden IBCs up to 1.5 m^3	No PG I liquids No Class 4.3, PG I solids with subsidiary risks allowed. IMO should consider allowing some of these in metal IBCs	No PG I liquids
4.3	8	I	No PG I Liquids Solids-IBC06 unless the subsidiary hazard is PG III then IBC04	No PG I Liquids Solids-IBC04(242) PG I solids are authorized only in metal IBCs up to 3m^3 and in rigid plastic, composite flexible, fiberboard and wooden IBCs with capacities of up to 1.5 m^3	No PG I liquids No Class 4.3, PG I solids with subsidiary risks allowed. IMO should consider allowing some of these in metal IBCs	No PG I liquids
4.3	3, 8	I	No PG I liquids	No PG I Liquids	No PG I liquids	No PG I liquids
4.3	-	II	Liquids-IBC03 Solids-IBC07	Liquid-IBC01(243) Solids-inconsistent assignments-241, 242 and some B101 for some on a case by case basis (IBC04, IBC05). Need to consider assigning 242 to all of these materials.	The Code is inconsistent on these. Need to consider whether these substances require special treatment or if they can all be assigned more consistently. This is generally the case for many of the Class 4 substances.	Liquids not allowed Solids IBC04 with some restrictions
4.3	3	II	IBC01 Only 3207-dispersion	IBC01 (243, B101)	Only UN 3207- not allowed IMO should allow this in metal IBCs.	Liquids not allowed

Class or Division	Subsidiary risk	PG	Proposed IBC Packing Instructions	49CFR Assignments and observations	IMDG Code (Amdt. 28) Assignments and observations	RID/ADR Assignments and observations
4.3	4.1	II	IBC06	IBC06 (242, B101)	Solids: UN 1340-IBC06 UN 3132 not allowed	
4.3	4.2	II	IBC06 unless the subsidiary hazard is PG III then IBC04 Zinc powder-IBC07	IBC06 (242, B101 except zinc dust-242) except zinc dust-IBC05(242)	UN 1418, 3135 & 3209 not allowed. UN 1436-IBC07-Another example where the Code does not differentiate by PG	
4.3	6.1	II	Liquids-IBC01, unless the subsidiary hazard is PG III then IBC02 Solids-IBC04	Liquid-IBC01(243) Solid-IBC05(242), UN 3134(242, B105.6)only in rigid plastic IBCs	Liquid-UN 3130-not allowed Solids-UN 1395-IBC05, B3, B4 UN 3134-Metal only with CAA	
4.3	8	II	Liquid-IBC01, unless the subsidiary hazard is PG III then IBC02 Solid-IBC04	Liquid-IBC01(243, B106) Solid-IBC04 (242, B101)	Liquid-UN 3129-not allowed Solid-UN 3131-Metal only with CAA UN 3131 is an example where the Code does not differentiate by PG	
4.3	-	III	Liquids-IBC03 Solids-IBC05, B3, B4	Liquids-IBC03(242, B106) Solids-IBC05 (241, inconsistent B codes-B105, B106, B108)	Liquids(1348 only)-not allowed Solids-IBC05, B3, B4, except UN1403 & 2844-IBC04	Liquids-IBC03 Solids-IBC04 those w. m.p. 45C also allow flexibles
4.3	3	III	IBC03	IBC03 (242, B106)	Only 3207-not allowed	
4.3	4.1	III	IBC05, B3, B4	Only allowed in rigid plastic IBCs (241, B105, B106)	Only UN 3132 (solid)-not allowed	
4.3	4.2	III	IBC05, B3, B4	IBC05, B3, B4 (241, B106, B108)-inconsistent B notes	UN 1418, 3135 & 3209 not allowed. UN 1436-IBC07	
4.3	6.1	III	Liquids-IBC03 Solids-IBC05, B3, B4	Liquids-IBC03(242, B106) Solids-IBC05-inconsistent B notes (240,241, B105, B106, B108)-UN 3134-rigid plastic only	Liquid-UN 3130-not allowed Solids-UN 1395-IBC05, B3, B4 UN 1408-IBC05(not reqd to be stillproof or waterproof) UN 3134-Metal only with CAA	
4.3	8	III	Liquids-IBC03 Solids-IBC05, B3, B4	Liquid-IBC03 (242, B106) Solid-Rigid plastic only(241, B105, B106	Liquid-UN 3129-not allowed Solid-UN 3131-Metal only with CAA	
5.1	-	I	No PG I Liquids Solids-IBC04	No PG I Liquids Solids-Peroxides and superperoxides not allowed. Oxidizing solid, nos-IBC05 (242)	No PG I liquids Solids- IBC04, except 1H/2 and 2H/2 are not permitted and a CAA is required. Some substances not allowed on a case by case basis.	No PG I substances
5.1	4.1	I	No PG I Liquids Solids-IBC08	No PG I Liquids Solids-IBC08(214)	No PG I liquids Only UN 3171(oxidizing solid, flammable, n.o.s.)-not allowed	No PG I substances

Class or Division	Subsidiary risk	PG	Proposed IBC Packing Instructions	49CFR Assignments and observations	IMDG Code (Amdt. 28) Assignments and observations	RID/ADR Assignments and observations
5.1	4.3	I	No PG I Liquids Solids-IBC08	No PG I Liquids Solids-IBC08(214)	No PG I liquids Only UN 3121(oxidizing solid, water-reactive, n.o.s.)-not allowed.	No PG I substances
5.1	6.1	I	No PG I Liquids UN3087-IBC08	No PG I Liquids Solids-IBC05(242)-only UN3087. This seems a bit too liberal?	No PG I liquids Only 1 solid substances-UN 3087-not allowed	No PG I substances
5.1	8	I	No PG I Liquids Solids-IBC08	No PG I Liquids Solids-IBC05(242) only UN3085. This seemstoo liberal	No PG I liquids UN 3085-not allowed	No PG I substances
5.1	6.1/8	I	No PG I substances	No PG I substances	No PG I substances	No PG I substances
5.1	-	II	Liquids-IBC03 Solids-IBC05; B4	Liquids-IBC03(242) Solids-IBC05(240)	Liquids-IBC01 Solids-IBC05; B3 (3,4 siftproof liner reqd for flexible and fibreboard)	Liquids-IBC02 Solids-IBC04 (11H/Z not allowed) Solids w. m.p. <45C IBC07
5.1	4.2	II	IBC08 (UN 3100)	UN3100-IBC08(214)	Solid-UN 3100-not allowed	
5.1	4.3	II	IBC08 (UN 3121)	UN3121-IBC08(214)	Solid- UN 3121-not allowed	
5.1	6.1	II	Liquids-IBC01 Solids-IBC05; B4	Liquid-IBC01(243) Solids-IBC05(242) UN2741-Barium Hypochlorite-not allowed.	Liquids-UN 3099 (oxidizing liquid, toxic, nos)-not allowed Solids-IBC05; B3-There are a number of solids not allowed in IBC which should be (i.e. UN 2719, 1445, 1447, 1448, 1449, 1470, 3087). Some of these are listed under there alternate PSN (solution) in the liquid list.	
5.1	8	II	Liquids-IBC01 Solids-IBC05; B4	Liquid-IBC01(243) Solids-IBC05(242)	Liquids-Un 3149, 2014-Hydrogen peroxides not allowed. UN 3098-not allowed. Solids-IBC04. UN 3085 not allowed.	
5.1	-	III	Liquids-IBC03 B2 for hydrogen peroxide Solids-IBC05; B3	Liquid-IBC03(241) Solids-IBC05((240) B104-for hydrogen peroxide B103 for Calcium hypochlorite mixtures, dry	Liquids-IBC01, IBC02 (Hydrogen peroxide) not consistent. Solids-IBC05; B3 (3, 4-siftproof liner used in the Code but not consistently)	
5.1	6.1	III	Liquids-IBC03 Solids-IBC05; B3	Liquid-IBC03(242) Solid-IBC05(240)	Liquids-UN 3099-not allowed. Solids-UN 3087-not allowed	
5.1	8	III	Liquids-IBC03 Solids-IBC05; B3	Liquid-IBC03(242) Solid-IBC05(240)	Liquids-UN 3098-not allowed. Solids-UN 1511-All IBCs except metal-Need to consider if metal can be allowed. UN 3085-not allowed.	
5.2 Organic Peroxides	-	II	Organic peroxides per organic peroxide tables	---------	Organic peroxide assignments are consistent with UN	

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6.1	-	I	No PG I liquids Solids-IBC05; B3, B4 *May need to consider this on a case by case basis. May need to assign N.O.S entries to IBC 04*	No PG I Liquids Solids-IBC05(242)	No PG I liquids Solids-IBC05; B3 - Some substances not allowed in fiberboard or flexible IBCs (i.e. UN 1575, 2769). Some substances not allowed in IBCs (i.e. UN 1694, 3048)	No PG I substances except sodium cyanide is allowed in metal and wood IBCs provided in a full load
6.1(TIH)	-	I	No PGI liquids	No PG I Liquids	No PGI liquids	No PGI liquids
6.1	3	I	No PGI liquids	No PG I Liquids	No PGI liquids	No PGI liquids
6.1(TIH)	3	I	No PGI liquids	No PG I Liquids	No PGI liquids	No PGI liquids
6.1	4.1	I	Solids-IBC04 (UN 2930 only)	Solids-IBC05(242 H106)-**This seems too liberal.**	Solids-UN 2930 (only) - IBC04 but only with CAA.	No PGI substances
6.1	4.2 pyrophoric	I	No pyrophorics	No pyrophorics	No pyrophorics	No pyrophorics
6.1	4.2 self-heating	I	No PG I substances	No PG I substances ; Liquids-(244) Solids-(242 H106)	No PG I substances	No PG I substances
6.1	4.3	I	No PG I substances	No PG I Liquids	No PG I substances	No PG I substances
6.1	5.1	I	No PG I substances Solid-UN3086 only-IBC04	No PG I Liquids Solid-UN3086-IBC04 (242 PG I solids are only authorized in metal IBCs 3 m³ and in rigid plastic, composite flexible, fiberboard and wooden IBCs up to 1.5 m³	No PG I substances	No PG I substances
6.1	8	I	No PG I substances Solids IBC04	No PG I Liquids Solids-IBC04 (242 PG I solids are only authorized in metal IBCs 3 m³ and in rigid plastic, composite, flexible, fiberboard and wooden IBCs up to 1.5 m³	No PG I substances	No PG I substances
6.1	3 8	I	No PG I liquids	No PG I Liquids	No PG I liquids	No PG I substances
6.1	-	II	Liquids-IBC03 Solids-IBC05; B4	Liquids-IBC01(243)-some liquids-IBC03(B1 B6) Solids-IBC05(242)	Liquids-IBC02 Solids-IBC05; B3	Liquids-IBC02 Solids-IBC04 no composites with flexible inner receptacles
6.1	3	II	IBC02	IBC01 or IBC03 if the subsidiary hazard is Class 3 with a flash point greater than 38 °C (100 °F).	IBC02; (2.4.5 states require CAA - CAA should not be necessary even for N.O.S entries	IBC02
6.1	4.1	II	IBC05; B3, B4	Solid-IBC05(242, for UN 2930 H106)	IBC05 (3.6.7)-UN 1567 IBC04 (6.7)-UN 2930 inconsistently assigned. Need to review these. CAA should not be necessary.	Solids-IBC04 no composites with flexible inner receptacles

Class or Division	Subsidiary risk	PG	Proposed IBC Packing Instructions	49CFR Assignments and observations	IMDG Code (Amdt. 28) Assignments and observations	RID/ADR Assignments and observations
6.1	4.2 self-heating	II	IBC05, B4 (UN3124 only)	IBC05 (242)	UN 3124-not allowed	Solids-IBC04 no composites with flexible inner receptacles
6.1	4.3	II	Liquids-IBC02 Solids-IBC04	Liquids-IBC01(243) Solid-IBC06(242, B101)	Liquids-UN 3123-not allowed Solids-UN 3125-not allowed	Liquids-IBC02 Solids-IBC04 no composites with flexible inner receptacles
6.1	5.1	II	Liquids-IBC02 Solids-IBC05, B3, B4	Liquid-IBC01(243) Solids-IBC05 (242)	Liquids-UN 3122-not allowed Solids-UN 2727-IBC05, B3. UN 3086-not allowed	Liquids-IBC02 Solids-IBC04 no composites with flexible inner receptacles
6.1	8	II	Liquids-IBC02 Solids-IBC05, B4	Liquids-IBC01 (243) Solids-IBC05 (242)	Liquids-IBC02 Solids-these are inconsistently assigned and should be reviewed	Liquids-IBC02 Solids-IBC04 no composites with flexible inner receptacles
6.1	3, 8	II	IBC01	IBC01 (243)	IBC01, UN 2742 is not allowed in IBCs. IMO should consider an IBC assignment for UN 2742 (chloroformates, toxic, corrosive, flammable, n.o.s.)	Liquids-IBC02 Solids-IBC04 no composites with flexible inner receptacles
6.1	-	III	Liquids-IBC03 Solids-IBC05, B3	Liquid-IBC03 (241) Solid-IBC05 (240)	Liquids-IBC03 Solids-IBC05, B3-However some inconsistencies exist (i.e. UN 2239,1663, 2235, etc.)	Liquids-IBC03 Solids-IBC04 Solids w. m.p. 45C IBC07 except 13H1, 13L1 and 13M1 not allowed
6.1	3	III	IBC03	IBC03 (242)	IBC03, only with CAA. CAA is not necessary?	IBC03
6.2		-	None Regulated Medical Waste in IBCs?	None	None	None
7	-	-	None	None	None	None
7	4.2 (pyrophoric)	-	None	None	None	None
7	5.1	-	None	None	None	None
7	8	-	None	None	None	None
8	-	I	No PG I liquids Solids-IBC05, B3, B4	No PG I Liquids Solids-IBC05 (242)	No PG I liquids Solid-IBC05, B3, or IBC04 with CAA reqd. These are inconsistently assigned. Need to review these	No PG I substances
8	3	I	No PG I liquids	No PG I Liquids	No PG I liquids	No PG I liquids
8	3 (6.1)	I	No PG I liquids	No PG I Liquids	No PG I liquids	No PG I substances
8	4.1	I	IBC04 (UN 2921 only)	IBC05 (242, B106)	UN 2921-IBC04 (6.7-composite-1.7.16) with CAA	No PG I substances
8	4.2 (self-heating)	I	No PG I liquids Solids-IBC06 (only 3095)	No PG I Liquids Solid-(243, B100)-not allowed	No PG I liquids Solids-UN 3095-not allowed	No PG I substances

Class or Division	Subsidiary risk	PG	Proposed IBC Packing Instructions	49CFR Assignments and observations	IMDG Code (Amdt. 28) Assignments and observations	RID/ADR Assignments and observations
8	4.3	I	No PG I liquids Solids-IBC06(only 3096)	No PG I Liquids Solid-Only in rigid plastic IBCs (243, B105)	No PG I liquids Solids-UN 3096-IBC04 (5.6.7) with CAA	No PG I substances
8	5.1	I	No PG I liquids Solids-IBC06	No PG I Liquids Solids-UN3084 (242, B100)-Not allowed. Nitrating acid mixtures (1796, 1826)-IBC06 only up to 3 m³ (243)	No PG I liquids Solids-UN 1796, 1826, 3084-not allowed. IMO should consider allowing these at least in metal IBCs	No PG I substances
8	5.1 6.1 (Nitric acid red fuming only)	I	None (UN 2032 only)	None (244)	Not allowed	No PG I substances
8	6.1 (TIH)	I	No TIH substances	No PIH	None	No PG I substances
8	6.1 (not TIH)	I	No PG I liquids Solids-IBC06 unless the subsidiary hazard is PG III then IBC04	No PG I Liquids Solids-UN 2923-IBC05(242) others (243)	No PG I liquids Solids-UN 2923-IBC04 (6.7) with CAA. The requirement for CAA should be minimized	No PG I substances
8		II	Liquids-IBC03 Solids-IBC05, B3, B4	Liquids-IBC03 (242) Solids-IBC05(240)	Liquids-IBC02, some substances IBC01 only with CAA (i.e. 1898, 1938, etc.) Solids-IBC05, B3, some substances IBC04 (i.e. UN 1770, 1794). Take a look at UN 3263 there are an awful lot of special requirements (3.6.9.1)(7)	Liquids-IBC02 Solids-IBC04 no composites with flexible inner receptacles Solids w. m.p. -45C IBC07 except 13H1, 13L1 and 13M1 not allowed
8	3	II	IBC02	Some are PIH and not allowed. IBC01(243) unless the sub-risk is Class 3 with a flash point greater than 38 C (100 F) then IBC04	Liquid-IBC02	IBC02
8	4.1	II	IBC05, B3, B4 UN 2921 Only	IBC05 (242)	UN 2921-IBC04 (5.7) with CAA-IMO should reconsider when CAA is necessary	Solids-IBC04 no composites with flexible inner receptacles Solids w. m.p. -45C IBC07 except 13H1, 13L1 and 13M1 not allowed
8	4.2 self-heating	II	Liquids-IBC03 Solids-IBC05, B3, B4-UN 3095 only	IBC05 (242)	Liquid-UN3101-not allowed Solid-UN 3095-not allowed	Liquids-IBC02 Solids-IBC04 no composites with flexible inner receptacles Solids w. m.p. -45C IBC07 except 13H1, 13L1 and 13M1 not allowed
8	4.3	II	Liquids-IBC02 Solids-IBC04	Liquid-IBC01 (243) Solid-Rigid plastic only (242, B105)	Liquid-UN 3094-not allowed Solid-3096-3096-IBC04 (5.6, 7) with CAA-same as PG I	Liquids-IBC02 Solids-IBC04 no composites with flexible inner receptacles Solids w. m.p. -45C IBC07 except 13H1, 13L1 and 13M1 not allowed

Class or Division	Subsidiary risk	PG	Proposed IBC Packing Instructions	49CFR Assignments and observations	IMDG Code (Amdt. 28) Assignments and observations	RID/ADR Assignments and observations
8	5.1	II	Liquids-IBC02 Solids-IBC04	Liquids-IBC01 (243) Solids-(242, B100)-Not allowed	Liquid-UN 3093-not allowed 1802-IBC01with CAA Solid-3084-not allowed	Liquids-IBC02 Solids-IBC04 no composites with flexible inner receptacles Solids w. m.p. >45C IBC07 except 13H1, 13L1 and 13M1 not allowed
8	6.1 (TIH)	II	No TIH substances	No PIH	UN 1810, 1838, 2442-not allowed	
8	6.1 (not TIH)	II	Liquids-IBC02 Solids-IBC05, B4	Liquids-IBC01 (243) Solids-IBC05(240)	Liquid-IBC02(4,5,7), some require CAA Solids-IBC05(3,5,6,9,10), some IBC04 with CAA (i.e. 2923)	Liquids-IBC02 Solids-IBC04 no composites with flexible inner receptacles Solids w. m.p. >45C IBC07 except 13H1, 13L1 and 13M1 not allowed
8	3, 6.1 (TIH)	II	No TIH substances	No PIH	UN 2826-IBC02	
8	3, 6.1 (not TIH)	II	IBC01	IBC01 (243)	UN 2683-IBC01(4,5) with CAA. It does not make sense that UN 2826 has a less stringent assignment	Liquids-IBC02 Solids-IBC04 no composites with flexible inner receptacles Solids w. m.p. >45C IBC07 except 13H1, 13L1 and 13M1 not allowed
8	-	III	Liquids-IBC03 Solids-IBC05, B3	Liquids-IBC03 (241) Solids-IBC05 (240)	Liquids-IBC03 Solids-IBC05, B4 sometimes B3	Liquids-IBC03 Solids-IBC04 Solids w. m.p. >45C IBC07 except 13H1, 13L1 and 13M1 not allowed
8	6.1	III	Liquids-IBC03 Solids-IBC05, B3	Liquids-IBC03 (241) Solids-IBC05 (240)		Liquids-IBC03 Solids-IBC04 Solids w. m.p. >45C IBC07 except 13H1, 13L1 and 13M1 not allowed
9	-	II	Liquids-IBC03 Solids-IBC05	Liquids-IBC03 (241) Solids-IBC05 (240)	Liquid-UN 2315, 3151-not allowed Solids-IBC05, B3 (3,6) UN 3152-not allowed	Liquids-IBC02 Solids-IBC04 except no composites with flexible inners Solids w. m.p. >45C IBC07 except 13H1, 13L1 and 13M1 not allowed
9		III	Liquids-IBC03 Solids-IBC05 *Need to consider whether elevated temperature materials should be allowed in metal IBCs*		Liquids-UN 3082-IBC03 UN 1841, 1990, 1941-not allowed Solids-IBC05, B3 sometimes	Liquids-IBC03 Solids-Solids-IBC04 Solids w. m.p. >45C IBC07

Note: The Sub-Committee should consider whether PG I and II n.o.s. entries should be assigned to IBC08